THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

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THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

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The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

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Distributing Our Product. It has been said that the future of America is in the hands of two men, the investigator and the interpreter. The practical value of every invention, discovery, or improvement depends upon its being interpreted to the masses, and in particular to the special group in a position to use it to the best advantage. So, investigation advances knowledge, while interpretation advances progress.

Information is our product, and the records show that we are distributing that product quite efficiently--and economically. We are combining investigation and interpretation in a manner to put our results very promptly into the hands of those who can use them profitably.

In addition to the thousands of letters received and answered during the year, each dealing with somebody's specific problem, we contributed during the period July 1, 1933 to June 30, 1934, no fewer than 50 papers to the various Department series of bulletins; prepared and distributed more than 25 informal multigraphed and mimeographed circulars on special or emergency topics; and presented phases of our work in more than 200 papers contributed to journals published outside of the Department.

We are rapidly approaching the goal of having bulletins available on every important fruit, nut and vegetable crop and ornamental plant. Some of our bulletins have been translated into foreign languages. Others have been incorporated into standard textbooks. Our more popular Farmers' Bulletins have actually reached the amazing circulation of 1,500,000 copies each.

Two very popular bulletins are "Roses for the Home," and "Beautifying the Farmstead," both by Furman Lloyd Mulford, issued as Farmers' Bulletin 750 and 1987. Pressing them closely in the matter of circulation is Farmers' Bulletin 1673, "The Farm Garden," by J. H. and E. R. Beattle--and with good reason! Tne 1930 Census shows the value of "farm garden vegetables grown for home use only" (not including potatoes and yams), crop of 1929, as $226,046,413--more than a quarter of a BILLION dollars! As the authors of the bulletin point out, a well-cared for garden will yield a greater return per acre than any similar area on the farm devoted to regular farm crops. A project that adds so materially to the well-being of the farm family by supplying food that might not otherwise be provided, merits our encouragement and has always received it.

In distributing our product, we have not neglected the spoken word, for it may well be that addresses delivered by our investigators before conventions and growers' meetings will exert a greater influence than the printed word in some cases. This is particularly true when our workers appear before key men of various industries or sections of industries, as at conventions of trade associations, manufacturers' groups, farmers' meetings, and the like. Then, too, such talks quite often appear later in the printed proceedings of these meetings.

Dates A striking illustration of the helpfulness of such talks was the appearance of W. R. Barger before the Date Growers' Institute at Indio, Calif. last Spring. Here he explained the methods he has worked out for the handling and storage of fresh dates, methods so far-reaching in importance that they vitally affect the entire date industry and actually have the effect of making dates a staple instead of a very seasonal product.

Such a discovery, placed at their disposal so promptly, means a great deal to the date growers, but it is important for the consumer as well for it paves the way to a wider utilization of one of the very finest food crops, and one as yet comparatively little used in this country. Further interest is given to the work by the fact that the commercial date industry of the United States was brought into being as a result of the Department's investigations. It is now one of the promislng new fruit industries of the Southwest.

Walnuts One of the important publications of the year is Technical Bulletin 387, "Pollination and Blooming Habits of the Persian Walnut in California," by Milo N. Wood of our staff. But as important as this bulletin is, it is quite likely that Mr. Wood's personal talks and demonstrations have been of greater value. He went into the field and showed growers increased yields as high as 194 percent as a result of his system of artificial pollination!

The value of the increased yields per acre in his demonstrations ranged from $25.62 to $429.00, while the cost of the artificial pollination was but from $1.46 to $3.00 an acre. In some of the orchards in which his demonstrations were made, the increased yield from the artificial pollination was sufficient to produce a profit for the first time in the history of the orchard involved!

OUTSIDE PUBLICATION

Of late years we have been taking more and more advantage of the opportunities offered for prompt publication of results by the various agricultural and farm papers, trade journals, and scientific publications. Some of our largest dividends have been made possible through the friendly cooperation of these papers.

Citrus Fruit Thinning, etc. It was through the help of these papers that we were able to place before growers the results of our studies on pruning methods, and to secure an almost general substitution of light thinning in commercial orchards for the more severe pruning methods previously used by the citrus growers of California. Through this substitution, a large annual saving in the amount of Washington Navel and Valencia orange, Marsh grapefruit, Eureka and Lisbon lemon crops has been effected without any reduction in the quality of the fruit; the cost of pruning has been greatly reduced, and marked increase in size of the trees has been brought about by eliminating the dwarfing effect on tree growth caused by heavy pruning.

The substitution of light thinning for the severe pruning formerly used is estimated by A. D. Shamel to be worth at least $3,500,000 a year to California growers alone--a saving of more than three times the annual cost of all of the investigational work of the Division of Fruit and Vegetable Crops and Diseases.

Canning, Drying and Preserving. Outside journals, too, have given us very effective channels for the distribution of data of vital importance to the rapidly growing and changing canning, drying and preserving industries. Freezing preservation in particular is so imperfectly understood as yet that constant warnings are necessary to safeguard the industry from severe losses through the use of the wrong methods or unsuitable varieties.

Unless we put our findings on record promptly and in some detail, we find it very difficult to convince the average fruit and vegetable handler that one variety is better than another for freezing preservation, for example. And it is even more difficult to convince him that a variety unsatisfactory for general market purposes may be exactly what is needed to make a first-class frozen pack product!

Peaches for Preservation By Freezing. One of most important contributions in this field told of studies on the varietal adaptability of peaches to freezing in small consumer packages. Just how important such studies are, and how vitally the information they supply is needed, is indicated by the revelation that of 56 varieties of peaches tested, only 9 made a ready-to-serve dessert product ranked as satisfactory in texture, degree of preservation of natural color, and characteristic flavor and aroma. This clearly indicates the risk faced by the fruit handler who goes ahead without expert advice in this freezing preservation field. Prompt distribution of our findings is very desirable.

Freezing the Young Dewberry and Raspberry. Other studies, also published in outside journals, reveal the possibility of delivering the Young dewberry and red raspberry to consumers by means of frozen pack in a condition practically equal to the freshly picked fruit. The Young dewberry is well known for its superlatively fine flavor but heretofore it has not been possible to ship it for any considerable distance, as the berries softened and stained the boxes. The red raspberry, already one of the popular dessert and breakfast fruits, should meet with greatly increased consumption now that means have been found for delivering it in a practically fresh state over a good part of the year.

Kieffer Pears Another contribution told of interesting developments in connection with our studies of the Kieffer pear, widely grown in the Southern and Eastern states, where it yields large crops and is relatively blight resistant. Heretofore it has not borne a very good repltation for quality, but our investigators found that fruit held at 60° F. either with or without previous storage at 32°F. developed a flavor and texture markedly superior to that of lots held at either higher or lower temperatures, and the quality of the Kieffers so treated, when eaten fresh or after canning, was better than is usually considered possible with this variety.

We published, too, the results of studies which prove that preserves may be made from the Kieffer pear comparing very favorably with these made from Bartlets. All that is necessary is to avoid putting up the Kieffers as soon as gathered. They should be stored for approximately two weeks after harvesting in a temperature of from 60 to 65° F. This temperature range is the deciding factor. Merely storing the Kieffers is not enough. The temperature, it was found, must be kept within this narrow range to secure the best results. This should not be particularly difficult, however, and the distribution of our findings in this connection should result in a greatly increased use of Kieffer pears for preserves--especially by housewives who have material that would otherwise perish.

Sweet corn. Recently we have been telling of frozen pack sweet corn fresher and sweeter after 6 months or a year storage than sweet corn bought at the market with the husks still fresh! Freezing appears to stop most of the changes that normally take place so rapidly in sweet corn after it is gathered.

We have perhaps made a little wider use of outside publications in connection with our freezing preservation work than with most of our investigations, because this frozen pack industry is so new and so imperfectly understood as yet that facts are needed promptly to safeguard against heavy financial losses. It is a matter of extreme gratification that we have been able to offer helpful suggestions, and to have played an important part in laying the foundation for this new industry. A summary of the contribution of our workers to the studies of freezing preservation of fruits and vegetables would include such things as the discovery that satisfactory commercial preservation can be obtained by the use of ordinary cold storage temperatures without the installation of special low-temperature-producing equipment; the demonstration that no danger to public health exists in properly handled frozen pack vegetables, and that the frozen packing of vegetables is safe as well as commercially feasible; the establishing of commercial packing and preservation technique for many types and varieties of fruits and vegetables, and the pointing out of the fact of varietal adaptability of fruits and vegetables to freezing preservation and the relation of fundamental science to thetechnology of this industry.

Celery Mosaic Not only have we been able to enlist the aid of the farm and trade journals in getting our results before those interested, but such technical periodicals as Science give considerable space at times to our work. It was in Science that we presented Dr. F. L. Wellman's preliminary account of celery mosaic control in Florida by the eradication of the wild host.

It had been discovered in the course of our investigations that a form of mosaic affecting celery in Florida was also generally to be found upon a particular wild plant or weed. Further study revealed the fact that the disease carried over from year to year on this weed, and was transmitted from the diseased weeds to healthy celery plants by plant lice. It appeared that then if it were practicable to control this weed in the immmediate vicinity of the celery fields, it should be possible to largely eliminate that form of mosaic in celery in that section of Florida. Weed control campaigns under the guidance of our workers have thoroughly deminstrated the practicability of obtaining commercially satisfactory control of the disease by this method--saving growers in that one area alone hundreds of thousands of dollars.

Preservation of Grapes in Transit and Storage. We were able to present in a fruit growers' journal a very comprehensive outline of the new method worked out by W. T. Pentzer and C. E. Asbury in connection with the use of sulphur dioxide as an aid in the preservation of grapes in transit and storage--an improved method which bids fair to do for grapes something of what oiled wraps have done for apples. Already it has been found satisfactory in commercial practice and is being used in the export of Thompson Seedless grapes to the Orient, thus promising to open up important new market outlets for considerable quantities of the more tender varieties of California grapes.

New hybrid Strawberries. Secretary Wallace this summer presented the strawberry breeding work briefly to readers of the Country Gentleman in connection with a discussion by him of the importance of agricultural research, but this work really merits an article by itself and, for that matter, has been discussed in several of the agricultural journals, as well as in Department publications, press releases and over the radio. To date we have introduced seven outstanding new strawberries which promise to replace largely the present commercial sorts in their respective fields--because they are superior in quality, in productiveness, and in disease resistance! The present annual value of the crop from these new sorts is more than $1,000,000, a total which will pass the $5,000,000 mark, it is conservatively estimated, within a very few years.

Behind this accomplishment is an interesting story of careful and patient work by our plant breeders. George M. Darrow, George F. Waldo and their associates have actually grown and tested more than 200,000 plants in developing the new hybrids. To begin with, of course, the seedlings are just planted out and left to sink or swim. Disease and insects eliminate a good portion in this preliminary test. Since resistance or immunity to pests and diseases in an all-important factor in new varieties, we naturally give attention only to the survivers in this test. Of the more than 200,000 seedlings grown in the field tests, then, slightly less than 4,000 have been considered worthy of further trials. From these the seven mentioned have already been selected as worthy of naming and introduction into commercial culture--and all have made good. Doctor Darrow, however, is optimistic that some even better than the original seven may be found among the plants still under test.

There is an added feature of interest in connection with this breeding cam-campaign in that it has aimed at the production not merely of a superior strawberry, but of several types of strawberries to meet special needs. Varieties adapted for eating as fresh fruit, for example, are not likely to be satisfactory for canning, as cooking tends to alter the flavor and the berries lose their shape and color, Neither the dessert varieties nor the canning sorts are suited to preservation by freezing. And so on.

It is four years now since we put out the Blakemore as the first evidence of what this strawberry breeding work was going to mean. It is one of the finest, if not the finest preserving variety. Its color and firmness make it a good market berry, and its added tart flavor serves to fit it for preserving. Last season in some sections the Blakemore was actually bringing $2.00 or more a crate than other sorts by reason of its fine appearance and superior shipping qualities. Now we are receiving enthusiastic reports on the Dorsett, Fairfax and Southland as desserts berries and on the Redheart as a canning variety.

Navel Orange--In Again! The things we have discussed so far represent what might be called solicited publicity. Getting the news about them into print has required some effort on our part. But certain of our investigations go right out and secure their own publicity. The Navel orange stands at the head of this list. It is easy for writers to find interesting things to say about the California citrus industry, its growth and development. One of the latest stories is based on a comparison between the California citrus industry and the State's gold mining activities. Figures show that in the period from 1895 to 1933, the Citrus industry has brought more than $2,000,000,000 (Two Billion!) to California--which is more then realized from all the gold mined in the State since 1848!

A rather curious feature of this publicity is that writers almost always deal with the Navel orange and the citrus industry in California, instead of discussing the development of orange growing in other sections of the country as well. Not only that, but in discussing the citrus industry of California they still emphasize the Navel, apparently ignorant of the fact that the Valencia is now represented by some 10,000,000 trees in California, while the Navel total is around 8,000,000. The Valencia comprises 61 percent of the present citrus crop of California. Of course, this attitude on the part of the writer is due to the spectacular history of the Navel orange in this country, and the astounding fact that the introduction of two Navel orange trees, sent to Riverside ,Calif. by the Department back in 1873, has given rise to a $100,000,000-a-year industry.

Scrub Cows--and Bud Selection. Some years ago a report of the Wisconsin Dairy Herd Improvement Association contained an essay entitled, "I Love My Scrub Cow." It said: "My scrub cow gives me employment every day of the year. She consumes my hay and grass, and grows sleek and fat. She is a thing of beauty, although a burden forever. To produce milk and butterfat would detract from her physical beauty, therefore it is unreasonable to expect it of her. She helps to reduce my income tax. I love my scrub cow. She is a luxury. Dairymen are entitled to luxuries as well as other people. My neighbor tells me to sell her to the butcher, but my neighbor is a hard-hearted man; so is the butcher. The cowtester says that the profits from three of my best producers will keep her in comfort, so why should I worry? I love my scrub cow. It requires much time to feed her, but very little time to milk her. My banker says that the small amount of milk she contributes can justly be called the 'milk of human kindness,' for it is human kindness alone that allows her to exist. Even Parson Jones was heard to remark that greater love than this hath no man, that he wears out his life supporting a scrub cow, expecting no reward, not even the respect of real dairymen."

It often seems to me that the real success story back of the growth and development of the citrus industry of the Southwest is to be found in the manner in which A. D. Shamel, C. S. Pomerory, and their associates past and present, have succeeded in convincing the growers that "scrub cows" may exist among plants as well as among animals. Merely introducing the Navel orange wasn't enough.

Their work soon established the fact that in a great many citrus orchards there were trees that were inherently unproductive; also trees that regularly bore off-type fruit which was unsalable. They also demonstrated that these tree characteristics were inherent and were perpetuated in progeny trees propagated from them; and that trees which were inherently productive, producing fruit of a desirable type, also perpetuated those characteristics in progeny trees propagated from them. These facts being established growers have topworked thousands of their unproductive and off-type trees with buds taken from parent trees having known superior performance records.

Likewise, nurserymen in propagating their stock have been taught to select buds from superior trees. In fact, with the growers made aware of the results of our work--and the agricultural journals of California aided greatly in this campaign of education--nurserymen who were not able to assure the purchasers of citrus stock that their trees were propagated from high performance parent trees had no customers for their stock! We thus struck at the root of the situation. If the growers could get nothing but good planting stock, then good planting stock was all they could get!

These bud selection studies have not only been of vital importance to the California citrus industry, but have actually influenced citrus growing all over the world. Probably the results of few of our research activities have been taken over by an industry all over the world to the extent exhibited by the citrus bud selection work.

It appears quite likely that this one project has returned to growers a dividend sufficient to cover the cost of <u>all</u> the fruit and vegetable crops and diseases work done by the Department since its establsihment!

<u>Lilies</u> For those who are not deeply interested in money returns, we are prepared to furnish stories of accomplishments in the field of beauty. We haven't gone about painting lilies, but we have added to their attractiveness in other ways. The Royal Horticultural Scociety's "Lily Yearbook for 1933" contains Dr. David Griffiths' discussion of methods for the vegetative propagation of the lily. The periodical "Horticulture," used his paper on "New Lilies for America." presented by him at the meeting of the American Society for Horticultural Science.

Commenting on these lily hybrids, a Pacific Coast writer, after a visit to our Bellingham station, wrote: "What Doctor Griffiths has accomplished in hyvirdizing and propagating new lilies seems little short of miraculous. To see the hundreds of lily varieties he has collected is a revalation, but to see the numberless hybrids he has produced is yet more astonishing. These hybrids far exceed their parents in vigor <u>and beauty</u>." That's painting them! The Pacific Coast writer adds; "Some may ask why the Government maintains farms merely for the propagation of flowers. Through this work it has been shown that we can raise narcissus, tulip and hyacinth bulbs literally 'to beat the Dutch,' and instead of importing millions of bulbs annually from Holland, we now ship them from Puget Sound in carloads."

Yellows-resistant Cabbage varieties

It begins to appear that we builded better than we knew when Dr. J. C. Walker and his associates saved the cabbage and keaut industries in some sections by producing yellows-resistant varieties promptly. Cabbage yellows is becoming a serious problem in many places where it was entirely unknown a few years ago.

When, in cooperation with the Wisconsin Agricultural Experiment Station, we developed the yellows-resistant cabbage variety known as the Wisconsin Hollander, it was intended to replace Danish Ballhead in the late cabbage growing regions where yellows were severe. Although the new variety was somewhat rough and lacking in uniformity, not so attractive as the best strains of Danish Ballhead, it saved from ruin the cabbage industry over a considerable territory where yellows was so severe that other varieties could not be grown.

As the disease has become increasingly severe in other areas, additional yellows-resistant varieties have been developed, each a disease-resistant counterpart of a susceptible sort, until we now have available a resistant variety of each of the important commercial types. We are now going back over the ground, making further refinements and improvements in the new sorts. Not only have we developed a disease-resistant sort, you see, but we have actually produced disease-resistant counterparts of each of the important but susceptible commercial types! It is not difficult to get the story of such an interesting and valuable piece of work before the public.

Those Million Dollar Dividends

The fact that horticulture is a $4,000,000,000 industry in this country, nakes any improvement or new variety an impressive dividend payer. A popular magazine recently had a discussion of Marquis wheat. Below a photograph of this variety was a legend stating that Marquis wheat had added hundreds of millions of dollars to the value of Canada's annual wheat crop. We know that such statements are literally true. In addition, the dollars that come from agriculture are, like those from mining, new dollars; not merely a passing of the same dollar from hand to hand.

Horticulture has no difficulty in matching the Marquis wheat dividend. Entirely aside from the creation of new varieties and the working out of new methods, the control of diseases adds milliins to the growers' incomes. Our investigators have shown that mosaic, leafroll, spindle tuber and other virus diseases of the potato are transmitted by aphids; that they are among the primary causes in so-called "running out" of potatoes; that there are several types of potato mosaic; that the combinations of these diseases are responsible for rapid deterioration in potatoes; and have gone on to demonstrate that the use of isolated tuber seed plots to grow disease-free seed, and the development of varieties resistant to diseases are the most effective means of controlling them. Preventive measures already placed at the disposal of growers are saving the industry $10,000,000 a year.

Sweetpotatoes. The development of effective control measures for sweetpotato black rot means a saving of $5,000,000 or more each year to growers. Even more important has been the work in reducing storage losses, not only saving millions for growers and handlers but making it possible to put sweetpotatoes on the market practically the entire year--to the delight of the consumer. We are continuing studies of varieties and strains of sweetpotatoes from different parts of the world and have found some that are apparently immune to fusarium wilt or stem rot, a disease which cannot be controlled by spraying, dusting or seed treatment. The increasing prevalence of sweetpotato wilt is going to force more and more growers to use disease-resistant sorts. We are preparing to meet the demand!

Fruit Diseases The amazing savings through the development of control measures in fruit diseases have always found ready space in the outside journals, startling and almost unbelievable as the figures sometimes are. Control methods with apple cedar rust, scab, bitter rot, blotch, powdery mildew, etc. represent, for example, annual savings of fully $20,000,000. There was a time, too, when the annual losses from peach yellows amounted to from $3,000,000 to $5,000,000. Control methods have cut the loss to about $500,000 a year. Another $10,000,000 annual saving has been brought about by the control of peach brown rot, scab, and the serious leaf curl disease. Pear blight control means another $10,000,000. with perhaps half as much from control measures with little peach, peach mosaic and phony peach disease. Just now we are making encouraging progress with control measures in pecan diseases.

However, this isn't a summary of results, but a description of distribution methods and mediums. I find that during the past fiscal year we have had discussions of our investigations in such magazines as Science, Journal of Heredity, Phytopathology, California Citrograph, Mycologia, Citrus Industry, Florists Exchange, Florists Review, Canner, Food Industries, Fruit Products Journal, Western Canner and Packer, Country Gentleman, Journal of the Washington Academy of Science, American Potato Journal, Ice and Refrigeration, Canning Age, Journal of Bacteriology, Seed World, Better Fruit, American Fruit Growers, American Nurseryman, Journal of Biological Chemistry, Journal of the American Chemical Society, the Farm and Garden supplements of the Los Angeles Times, the New York Times, and undoubtedly others not coming to the attention of the NEWS LETTER.

In addition, papers have appeared in the proceedings of the American Society for Horticultural Science, American Phytopathological Society, National Pecan Association, Date Growers' Institute, American Pomological Society, State Horticultural Societies, American Cranberry Growers, and in various Old World Journals and proceedings.

DEPARTMENT PUBLICATIONS

Vegetable Standardization and Description Studies. Among the interesting papers contributed by members of our staff to the Department publications during the past twelve months are the three issued in connection with Doctor Boswell's vegetable standardization and description work. Extremely rigid market requirements demand vegetable products quite uniform and true to type, as well as nationally recognized standards and descriptions of the varieties in the trade. This means in effect the application to vegetable crops of the standardizations methods of industry, and benefits seedsmen, growers, handlers and consumers. The publications are of the "census size", the pages being 9 x 11½ inches, and the three contain a total of 41 full-page half-tone plates, 15 full-page plates in natural color, and 33 text figures. The papers are:

U.S.D.A. Miscel. Pub. 160: "Descriptions of Types of Principal American Varieties of Tomatoes;"

U.S.D.A. Miscel. Pub. 169: "Descriptions of Types of Principal American Varieties of Cabbage," and

U.S.D.A. Miscel. Pub. 170: "Descriptions of Types of Principal American Varieties of Peas."

Rather than attempting to describe and treat the synomony of the hundreds of so-called varieties of vegetables now listed in American seed catalogues, these publications deal with but the dominent varieties of the vegetables discussed--those making up from 85 to 90 percent of the commercial acreage of this country. The bulletins listed describe 9 varieties of tomatoes, 9 of cabbage and 20 of peas. The studies upon which they were based were carried out at Arlington Farm, Va., and in New York, Indiana, Michigan, California, Pennsylvania, South Carolina, Virginia and a number of locations in Wisconsin and Texas. It was evident during the course of the work that a single stock of any given variety may vary more or less, depending upon the climatic and soil conditions under which it is grown. These differences in expression of varietal characters have been extremely confusing to the trade and knowledge upon this matter has been very greatly needed. The publications discuss in considerable detail the effects of different environmental factors upon the expression of individual varietal characteristics in the various sorts, and illustrate the varieties in considerable detail.

It is expected that the bulletins will be used most largely as handbooks of reference by seedmen, canners and growers. With this in mind, detailed directions are presented for testing and comparing varieties and stocks, and suggestions given as to how to make accurate comparisons and records. Preliminary to the detailed descriptions and illustrations, the outstanding characteristics of the principal varieties are presented in tabular form so that comparative differences can be recognized at a glance.

The descriptive text is comparatively brief, occupying but 12 to 18 pages in the different bulletins. The text includes not only descriptive and comparative terms for portraying the characteristics of each variety, but actual figures are presented for defining what is meant by the camparative terms used. Many thousands of measurements and individual readings were made as a basis for the verbal and numerical descriptions presented. On account of the high cost of these publications, they are available for purchase only--through practically at cost. They may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. -- 35 cents for No. 160; 50 cents for No. 169; and 45 cents for No. 170.

Much of the work necessary for similar publications on carrots, beets, spinach and onions has been done. All these studies are part of a tailored-to-measure job. The investigations were undertaken in response to the demands of the industry and hence designed to meet special needs and to accomplish definite ends. There has been the closest cooperation from the beginning with representatives of the canning and vegetable growing industries and the seed trade, while workers of nearly two dozen State agricultural experiment stations have joined hands in the studies.

It is expected that the elimination of "drone" varieties on the basis of the recommendations to be made in this series of bulletins will result in a saving of as much as $10,000,000 a year to the vegetable growing industry of the country. The standards and descriptions to be set up will enable a grower to concentrate on those varieties which represent the best chances for profitable sales and will result in better stocks of seed being available for planting.

Fruit Ripening. "The most illuminating of all contributions to the ripening of fruits," said the Gardeners' Chronicle last June, "is that made recently by Joseph S. Caldwell. (Technical Bul. 403, U.S. Dept. of Agriculture, "Hydrion Concentration Changes in Relation to Growth and Ripening in Fruits.") "Why should young apples be so hard and get so viciously acid before they reach a sweet and ripe old age...Dr. Caldwell holds, and we think rightly, that the sourness is not only the harbinger but also the begetter of ripeness. For so soon as acidity begins to increase the fruits begin to swell. The tree, willy nilly, is constrained to supply them copiously with water and the fruit increases in weight and size...Dr. Caldwell supplies the explanation: The thick walls of the fruit are mainly composed of substances which have properties similar to those of a jelly or glue; and so also have the living content of the cells. These, the pectose and the protoplasm, are colloids, possessing most imperious powers of absorbing water. Jelly-like colloids such as those of fruits can only exercise fully their power of imbibing water in an acid medium, and the more actively acid the medium is, the more water they can absorb. And so by piling up acid in itself the fruit makes short work of and turns to nought any resistance which the tree might offer to yielding up water to its young..."

PRESS RELEASES

One of the very best means for getting information distributed promptly and widely is through the use of the "press releases" sent out to hundreds of papers regularly by the Department Press Service. As a rule, we prepare the basic data for the release, and the experts in the Press Service put the material in the form most likely to be used by the papers served.

Controlling bean diseases. This type of publicity is especially effective with discoveries requiring a minimum of technical explanation. The fact that bean seed grown in the Western States is free from seed-borne diseases was one to be grasped and used immediately by any grower, with the result that the use of Western bean seed in the East, Midwest and South is already saving the industry actually millions of dollars--this one discovery yielding a dividend sufficiently large to pay the entire cost of the Division. Dr. W. D. Moore recently wrote from his headquarters at Charleston, S. C. pointing out that until 1929 the local growers bought bean seed without giving attention to anything except variety. Increased losses were sustained from year to year from such diseases as anthracnose, bacterial blight, and halo blight until during the season of 1928 the losses amounted to 50 percent for the entire trucking section of South Carolina, and many growers were annouucing that they were through with bean growing. As a result of our advice, Western seed is now used almost exclusively, and Doctor Moore has not found enough of the 3 diseases mentioned to count. Since the latest available figures give South Carolina a total annual yield of snap beans of more than 300,000 bushels, worth nearly $300,000, if we have been able to save half of this for the growers, we have a considerable dividend to report. This, of course refers to a single State. Similar returns are being secured in other regions.

Cabbage. A press release imparted the information that treating cabbage seed with hot-water would help, resulted in one test in which a 4-acre tract of cabbage on an Indiana farm produced 75 tons of cabbage, while a nearby field, planted with untreated seed, produced just 8 tons! Since the method is really so simple and inexpensive that it should be used by all cabbage growers, the principal equipment needed being an accurate thermometer. little time was lost between the time of discovery and its introduction into commercial use--thanks to the press release.

Citrus Refrigeration. A reduction involving charges for transit precooling went into effect last August, saving growers $19 a car over the rates previously in effect. Cold air at a temperature of about 25° F. furnished by a refrigeration plant operated by the railroads is blown through the cars until the temperature of the fruit is reduced to about 40° F. Then the car is tightly closed until it has crossed the hot desert region, after which the ventilators are opened to admit the cool outside air. No ice is used in the car at any time. In spring and fall the methcd maintans a satisfactory carrying temperature for the rest of the trip to the Eastern seaboard. Here is a type of discovery, the value of which is easily understocd. Publicity concerning such work emphasizes the fact that money spent for agricultural research is an investment of the highest class: not an expenditure in the true sense.

Bacterial Canker of Tomatoes

One of the most important press releases of the year was based on a talk on the bacterial canker of tomatoes, given by Dr. H. L. Blood at a meeting of the Utah Academy of Science. Bacterial canker is a serious disease which has been much more destructive since 1927 than in the years before. As a result a vigorous effort has been made to develop control methods. Cooperating with the Utah Agricultural Experiment Station, he learned that the seeds carried the disease, and various chemicals were tried as disinfectants.

In recent years canneries and seedsmen have been using high speed power machinery for extracting tomato seed from the ripe tomatoes. In general, the older and slower method of placing tomatoes in vats to ferment until the seeds loosened from the pulp has been discarded. But Doctor Blood had a lot of tomatoes which he knew were infected with the canker disease. He wanted this infected seed for tests of disinfectants. He did not have a power extractor. So he went about it in the discarded way, by fermenting the fruit pulp. From his lot he planted untreated seed, and seed treated with various disinfectants, and to his suprise found that the untreated seed which came from severely infected fruit was practically free from the disease--as good or better than disinfected seed from the same lot. He repeated the experiment. Again the fermented seed from diseased fruit proved free from the disease. In other words, his tests proved that a return to the old-fashioned method of fermentation in saving tomato seed will control about 100 percent of the transmission of bacterial canker in the seed--a discovery which means that the disease can be practically entirely eliminated! Before this discovery, many tomato growers had been wondering whether the disease did not spell ultimate ruin for most of them.

Tomato Juice.

And, speaking of tomatoes, a recent press release goes far to explain the necessity for continuing projects. The average person might feel that a scientific project should have a definite aim, and when that aim is accomplished the project should be dropped, definitely and finally. This is not always practical for the reason that the average scientific project has many phases. One problem may be solved--and new ones arise immediately.

Ten years ago we introduced the Marglobe tomato, developed primarily to obtain a variety resistant to Fusarium wilt. It proved to be resistant to the wilt and to the serious Nail head rust, and further revealed itself as a highly superior variety not only for the southern winter tomato area for which it was planned, but for many other regions as well. It has been one of our best dividends payers, and appeared to represent a job finished--and unusually well done. Now comes the phenomenal demand for tomato juice and we must go back over the work, testing and selecting progenies from the crosses made years ago in an effort to secure sorts especially suited for juice production--and at the same time resistant to Fusarium wilt and Nailhead rust.

INFORMAL CIRCULARS

We are making excellent use of the informal multigraphed or mimeographed circular, more than 25 being prepared (new and revisions) during the Fiscal Year. We now have them available on a wide range of subjects--from Acid Citrus Fruits to Zinnias!

Stem-end rot of Citrus Fruits. One of the most important of these circulars is that prepared by J. R. Winston outlining a new procedure in the use of borax for the control of stem-end rot of citrus fruits in Florida. He has put on paper a description of a common sense way of using an antiseptic wash--the wonder being that it was not thooght of and used right from the start. However, a lot of important discoveries have sounded ridiculously simple when described. Mr. Winston also discussed this newer borax treatment in an article in the Department's Yearbook for 1934.

Freezing Preservation. Until very recently it has not been possible for us to purchase officially reprints of papers contributed by members of the staff to outside journals. The authors were called upon to supply the demand for copies from their personal supply of reprints. We are now permitted to purchase such reprints in limited quantities (not to exceed 200) through the Department's Office of Information, but we find that it is often better to have the paper reproduced in the form of a multigraphed or mimeographed circular-- if it is not too long to be issued in this form. One of the papers recently handled in this manner is H. C. Diehl's "A Physiological View of Freezing Preservation," which originally appeared in Industrial Engineering Chemistry for June, 1932, and for which there has been a steady demand.

Form Letters. Sometimes the multigraphed or mimeographed circular is really nothing but a form letter, made necessary by repeated inquiries on the same subject. Such form letters can give more detailed information than would be included in a dictated letter--and 500 copies may be run off at about the cost of a single dictated letter.

Sometimes these circulars might impress the casual observer as being unnecessary or even undesirable, but the point is that any inquiry reaching the Department merits the best reply we can make. The only thing we have to bear in mind is to see that the work of answering inquiries is conducted in the most economical manner consistent with efficiency.

Last April, J. H. Beattie prepared a circular on "Do the Phasesof the Moon Affect Plant Growth?" A visitor seeing a copy of the circular on my desk, showed considerable amusement at the Department's "wasting time on such things." But we receive numerous inquiries on this subject and with the circular at hand any of the clerks can handle them satisfactorily--at a cost of less than 1 cent. Even trifling inquiries from tax payers deserve that much consideration!

THE RADIO

It appears quite likely that when prehistoric peoples exchanged messages by means of their signal fires, a part of the "programs" related to the handling of their farm and garden crops. Well, we are continuing such messages in the programs of the latest development in news transmission--the radio.

The radio has developed a phase which makes it very useful for distributing our information. It has built up regular programs which are looked forward to by thousands and even millions. The National Farm and Home Hour has become a regular daily event in the lives of hundreds of thousands of people, and the potential audiences is perhaps fifty or sixfty million. Well, we are on this program. Our Garden Calendar " has been appearing on the Farm and Home Hour every Tuesday for 6 years. We also take advantage of the opportunities offered by such radio programs as the "Farm Flashes," "The Primer for Town Farmers," "Housekeepers's Chats," etc.

About five years ago, at the request of garden clubs of the District of Columbia and nearby points in Virginia and Maryland, we started a weekly broadcast under the title "Timely Garden Suggestions," conducted by W. R. Beattie. This broadcast has met with an enthusiastic reception--as is indicated by the fact that it is still going strong after five years.

Because of the size and character of the radio audience, the programs are usually given in popular form, but such popular treatment does not necessarily weaken or lower scientific standards. The popular form simply makes the material more easily understood by the general radio audience. Last June we had an excellent presentation of the strawberry breeding work, given on the "Garden Calendar" program in the form of a sketch entitled "The Strawberry Festival." It met with a splendid reception and undoubtedly did much to impress the listeners with the accomplishments of the Division.

Dr. Victor R. Boswell's splendid presentation of our work for the vegetable growers and handlers of the country, given before commercial vegetable growers at Amherst, Mass., some months ago, during the Massachusetts Agricultural Experiment Station and Agricultural College Farm and Home Week, went out over the radio to thousands who need just such an outline of the aims and purposes of the Division's activities. After all, that is vitally essential for practically all criticism is based on lack of knowledge. Give a person a clear idea of what we have done, are doing and plan to do, and we have a friend and supporter.

ECONOMICAL DISTRIBUTION

Some years ago the Scientific Monthly paid the Department the compliment of stating that it effects the distribution of its product (information) more efficiently than industry effects the distribution of its products, and by strictly modern means. And we do this inexpensively. A former Secretary of Agriculture once wrote in regard to our publications:

"Most newspapers accept the burden of answering questions from readers. Some newspapers subscribe for a syndicated service that agrees to answer the questions that come in from the readers. Replies to readers cost money, but newspapers accept it as a part of their job. How much more is it the job of a public agency like the Department of Agriculture, supported by public funds and employing specialists who are recognized as authorities in thie fields.

"Our knowledge--no matter hcw developed--is public property. Every citizen has the privilege of writing to the department for information. Our specialists are investigating under specific appropriations provided for study of specific problems. The information is on tap for anyone who wants it, whether it is new or old. If the 6,000,000 separate forms do not turn to us or to the cooperating State institutions for information in usable form, where are they to get it? If they can't turn to us, why have a Department of Agriculture?

"In the early days of the department it soon became evident that specialists were spending time and effort in replies to oft-repeated questions which could be answered better, more comprehensively, and much more economically with printed pamphlets. Today the interest of the public is the principal determinant in selecting subjects for new popular bulletins. While a bulletin costs about 1-1/4 cents, a letter costs anywhere from 25 cents to a dollar. If a farmer writes to us and asks for information on onion culture and we reply, 'We're sorry, but we can't tell you anything about onions because many people feel it wouldn't be a proper function of government,' the cost of that short letter would be several times the cost of a bulletin that gives adequate information on growing onions."

It is a fact that we can distribute the average multigraphed or mimeographed circular, Farmers' Bulletin or Department Circular, for less than the cost of the stamp with which the inquirer mails his request for information. The NEWS LETTER itself is a good example of the economical distribution of information. Throug it our entire personnel is informed the first and fifteenth of each month concerning those matters affecting their official work--and the cost is $2.75 for 300 copies, including envelopes and mailing to more than 100 field employees. In other words, we get to all our employees the information, say, concerning a change in reporting cn advances of funds for travel, at about what it would cost the average section leader to notify his own staff. And each NEWS LETTER carries some 12 additional pages of information.

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_____ Peppers. (Revised)

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_____ Sweet pea diseases.

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_____ Rose propagation by cuttings.
_____ Rose propagation by means of seed.
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Vol. 7, No. 1 January 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY
UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D.C., January 15, 1935 No. 2

Plant Research and Agricultural Adjustment. "As in the past," says the Annual Report of the Chief of the Bureau of Plant Industry, "the Bureau has centered its activities on scientific research in the belief that such procedure will lead to the greatest aid to social and economic progress, thus contributing definitely and specifically to a sound program of agricultural adjustment. The researches of the Bureau aim at bringing about greater efficiency in crop production, transportation, and storage, together with the most advantageous methods of utilization. Thus the Bureau's fundamental work affects directly the producer, also those who legitimately and necessarily act as intermediaries between producer and consumer, and the consumer proper.

"The projects now mainly engaging the attention of the scientific staff extend over a wide and varied field. They involve three broad groups: (1) genetics or plant breeding, whereby crops better adapted to climatic vicissitudes and the constant shifting and changes in economic requirements are brought into being; (2) research on phytopathologic or plant-disease and plant-pest control; and (3) agrotechnic or improved cultural and handling methods whereby unit costs of production are lessened and unit prices received by the producer are increased."

The 1934 report discusses the work of the Bureau by Divisions, and the fruit and vegetable crops and diseases investigations are treated kindly, some six pages of the report being devoted to a discussion of various phases of our activities during the year.

BULB INVESTIGATIONS

Producer of Smiles

They tell us that a world without flowers would be like a face without smiles. So it is interesting to note that one of the Christmas presents offered readers of the December issue of the Florists' Review is the first of a series of 16 articles by Dr. David Griffiths, pointing out that tulip bulbs may be produced with profit in this country.

"This country is still occasionally informed that it cannot produce certain bulb stocks," he says,"and the platitude has been so often repeated that many believe it. This erroneous conception is responsible for much delay in the establishment of tulip culture. This disqualification has applied especially to tulips, daffodils, hyacinths and crocus. A part of the pronouncement has been exploded. This country now produces daffodils and irises in large volume, and in a quality equal to that of any imported bulbs."

Doctor Griffiths is convinced that better tulip bulbs can be produced in this country than those imported--and that they can be produced with profit to the grower. Why and how this may be done he is explaining in this series of articles in the Florists' Review. There is good evidence, he insists, to support the contention that tulips are more easily produced than either daffodils or bulbous irises. They are adapted to a wide range of conditions in this country.

We also can place them on the market earlier, producing stocks within the limits of profitable tulip culture which will bloom two or three weeks ahead of imported bulbs. And since the annual demand for tulip bulbs in this country totals around 200,000,000 in normal years, it is quite evident that the industry would be capable of maintaining a considerable farming population remuneratively. While the crop is somewhat exacting in its requirements, it really is not difficult to handle as a whole, and is less beset with troublesome pests than most horticultural ventures.

Being perfectly hardy, the tulip may be grown successfully over an extensive territory in the United States--the northwest, the central states, the Atlantic coastal plain, and the regions as far south as Tennessee and North Carolina. Too, the crop is adapted to a wide range of soil types. And Doctor Griffiths points out that methods have already been developed whereby hand labor in the production of tulip bulbs may be eliminated to a large extent. The notion that the crop is an expensive one to produce is all wrong, he declares, insisting that it is no more expensive than onion set production, while the yield under intensive and thorough cultivation is nothing less than phenomenal.

FRUIT DISEASES

R. B. Wilcox, Pemberton, N. J.

In a very interesting summary of disease conditions of blueberries and cranberries for the past season in New Jersey, he writes: "The blueberry crop of New Jersey was about 15 percent larger in 1934 than the previous year, and the price was a fraction of a cent higher, the average returns to growers being about 30 cents per quart. The crop increase was not quite as great as was expected from the new fruiting acreage. The deficit was due largely to injury to the bushes, especially of certain varieties, caused by low winter temperatures.

"This injury showed up in several ways and at various times. There was some complete killing of both the flower and leaf buds. Many entire canes were weakened so that they did not leaf out properly in the spring. They made some growth, but some of them weakened and died under the stress of producing a crop. Other canes are still living but have not made much new growth. In most of these weakened canes there is more or less discoloration of the pith. In a few fields the injured canes were removed in August and the remaining parts of the bushes seem to be in good condition and have made satisfactory growth. The low temperatures of last winter will undoubtedly have some effect on the 1935 crop, although a further increase in the total crop is to be expected.

"Parasitic diseases were not serious on the blueberries in New Jersey during the past season. The losses from Sclerotinia were slight. There was, as usual, some mildew on the leaf late in the season, but this has never been serious. Phomopsis was more prevalent than usual, but I lay this to the weakened condition of the bushes.

"As to the cranberries, false blossom continues to spread through the State as a whole. Control measures are coming into much more general use, however, and many badly diseased bogs have been replanted, so that the situation is improved on numerous properties. The trend is toward pyrethrum dusting rather than spray, although some dusting was rather ineffective last season. I believe that stronger dusts will be used in the future. As a result of our campaign against the use of flood water in June for leaf-hopper control, I expect this practice to be largely abandoned from now on. Due chiefly to the inroads of false blossom, the crop trend has been sharply downward for the last ten years and I suspect that it reached the bottom this season. Final crop figures are not yet available, but they will be between 50,000 and 60,000 barrels for the State. This is the smallest single crop since 1902, and the long-time average has fallen to about that of 1905. This in itself is very serious, but it is not the whole story.

FRUIT DISEASES

R. B. Wilcox (continued)

"Due to several separate causes, cranberry fruit rot has increased to the point where it took not far from 50 percent of the berries during the last season. A report was published in 1929 that bogs which had been sprayed heavily with bordeaux mixture were suffering from copper poisoning; this resulted in some spraying being stopped. Many growers were using their spraying equipment for leaf-hopper control during June, so that important bordeaux sprays were omitted. The high bog temperatures during last summer favored the development of early rots; but I believe the greatest single factor in increasing rot was the very general use of flood water in June for leaf-hopper control, beginning about 1929. We pointed out the danger of this practice, but the method was so cheap and effective that our warnings had little effect. The increase of rot has now become so unmistakable and serious that practically everyone is convinced that June re-flows must be abandoned. Thus, as regards rot, also, the bogs have returned to the condition of 1905, when Dr. Shear made his demonstration of rot control.

"Bordeaux spraying will be practiced much more generally and consistently next season than for several years past, and I look for an immediate drop in rot. The infection has become so heavy on many bogs, however, that it will take 2 or 3 years to control it satisfactorily. The usual spray programs have not always given good control and I believe our new recommendation to continue spraying through the blooming season will give a decided improvement.

"As you know, this recommendation is based both on our knowledge that the blooming period is a critical time for fungus infection and on our experiments of last summer, which showed that open flowers could be sprayed safely with bordeaux mixture and rosin-fish-oil soap. These experiments also indicated the unexpected importance of particular spreaders in addition to their role of increasing the effectiveness of the fungicide. We shall try to learn more about the effects of different spreaders next season."

H. F. Bergman, Amherst, Mass.

"The winter flood has been put on some bogs but about half of them are still out of water," he writes in the report of the Cranberry Disease Field Laboratory for the week ending December 22. "Some bogs are still short of flooding water, but rains late this fall have added to the supply in the reservoirs."

POTATO INVESTIGATIONS

W. C. Edmundson, Greeley, Colo.

"We are having some cold weather but no snow," he writes December 27th. "This winter, to date, has been very much like last winter. The men who are working on relief at the Station have lost no time because of cold or stormy weather.

"Weld County will hold its annual Seed Show and Farmers' Institue next week. I have been asked to discuss the work of the Station at the Institute. I expect to exhibit a number of our most promising seedlings at the Seed Show. Some young seedling plants and first year seedlings will also be shown. From all indications, good seed potatoes for planting the 1935 crop will be scarce in this section. There will be an increased demand for Triumph seed. Triumphs have been selling for 90 cents to $1.00, whereas Rurals have been bring but 60 cents per cwt.

"It is about 12 years since we introduced the Triumph in this section for the late crop, and its popularity has been growing ever since. The increased price received for this variety has meant much to growers."

COVERING TOO MUCH TERRITORY!

Among the more popular of our bulletins are the Miscellaneous Publications on market diseases of fruits and vegetables. Because of the colored plates in these bulletins and the resulting expense for printing them, the Department was able to secure only a small edition for free distribution and these have been sent to officials in State and Federal institutions who are in charge of lines of work directly related to the subjects covered -

Miscellaneous Publication 98, "Market Diseases of Fruits and Vegetables - Potatoes,"
Miscellaneous Publication 121, "Market Diseases of Fruits and Vegetables - Tomatoes, Peppers, Eggplants,"
Miscellaneous Publication 168 (in press) "Market Diseases of Fruits and Vegetables - Apples, Pears, Quinces".

So we have to refer inquirers to the Superintendent of Documents, Government Printing Office, Washington, D.C., who has a supply for sale--30 cents for 98; 20 cents for 121; and 40 cents for 168 (not out yet).

It appears, however, that some folks are a little too hopeful regarding the scope of the publications. One man wrote the other day, for example, asking for a copy of MP 121, "Market Diseases of Fruits and Vegetables - Tomatoes, Petters, Eggplants." The underscoring is ours!

FRUIT AND NUT PRODUCTION

Atherton C. Gossard, Spring Hill, Ala.

In a report which reached us a little too late to be included in the December 15 NEWS LETTER, he makes some comments on the weather that are still decidedly interesting.

"Within the past week we have had our first really winter weather," he writes, speaking of the two-week period ending December 15. "So wintry, in fact, that if I recall the newspaper write-up for December 12 correctly, the temperature was lowest for that date in the history of the Mobile Weather Bureau. Certainly it was unseasonable pre-holiday weather.

"The temperatures for the mornings of December 8, 11 and 12, respectively, were 27-1/2, 22 and 18 at the State Satsuma Experiment Station at Spring Hill. They were 4 to 6 degrees higher at the Mobile Weather Bureau which is in town, in a valley, and quite near the bay. All flowers in bloom, many succulent plants, and unpicked Satsuma oranges were frozen. The poinsettias, unfortunately, were ruined just before Christmas.

"The Satsuma growers suffered. Quite a bit of fruit was unpicked. The market had been poor and a number of growers were holding their fruit on the trees, hoping for a rise in the market. This unpicked fruit was lost. Very little heating of the orchards was done. It is questionable if the fruit could have been saved by heating, unless many more heaters were used than most growers have. How much injury was done to the trees is not yet known. It may be some time before all the effects of the freeze show up. Some little defoliation beginning to show but, just now, it does not look particularly serious. Two years ago, a 14-degree morning caused complete defoliation of the Satsuma trees, and considerable injury to the wood. It is to be hoped that the 4 degrees difference was enough to protect the trees from such serious injury this year."

Geo. P. Hoffmann, Meridian, Miss.

The sweetpotato storage house at the U. S. Horticultural Field Station appears to be working most satisfactorily, he reports, and a very small quantity of coal is being consumed. "It is interesting to observe the response to heat by the 9 varieties and selections," he comments. "The fact that some of the selections cure so much more rapidly than others suggests that our commonly accepted curing temperature of 85-90 degrees F. might result in under- and over-curing where several varieties are stored and cured in the same house. Apparently, roots of the white and red skin varieties and selections, especially the latter, are a bit sensitive to a temperature so high as 85-90 degrees F. immediately after having been placed in the curing house.

FRUIT AND NUT PRODUCTION

Milo N. Wood, Sacramento, Calif.

Touching upon the chestnut investigations, he writes: "It has been necessary from time to time to give prospective growers the best information available upon the chestnut. During November there were a smaller number of requests for such information than during any previous month for a considerable time. This is probably due to the fact that the enthusiasm of the growers for planting chestnuts has been somewhat subdued by the discovery of chestnut blight in California.

"Although chestnut blight was discovered in very limited areas, it appears that the blight thrives very well in the valleys of California, contrary to some of the opinions previously held by nurserymen and others. As the chestnut trees having the blight have been destroyed, it is hoped that the trouble will end there. However, the State Department of Agriculture and others are watching every chestnut planting quite closely.

In reference to the walnut pollination work, he wrote late in November that in all of the experiments examined a great increase in yield had been found, regardless of the fact that in some orchards from 30 to 40 percent of the walnuts were lost because of sunburn.

"Sunburn varied widely in the different districts," he comments, "but was quite general over most of California, and was especially bad in the valleys.

"Maps were completed of the various experimental plots with the exception of one or two. Records in the Escalon district have been completed. Yields in the pollinated plots in the so-called 'non-bearing' orchards ran about a ton to the acre in the district, and in the older orchards as high as 1-1/2 tons per acre. This is an increase of several times the crop previously obtained during the best years."

PAGING TARZAN!

It is beginning to look as though the folks down at the U. S. Pecan Field Station, Shreveport, La., are developing a field of activity for the numerous "Tarzans" who fail to land jobs in the movies. B. G. Sitton reports that trees in the orchard of Mr. Henry Marston, Cushatta, which were rosetted, have been treated--most of them with the zinc glazing points suggested by Doctor Chandler. Trees about 30 feet high took an hour or so to treat, he explains, and the larger ones will consume so much time that only a few can be handled. It can be imagined that it is no easy job to climb around in those big pecan trees, 50 to 60 feet high--hence the possible demand for Tarzans!

FRUIT AND NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"In the last two weeks," he writes on December 15, "we have covered considerable territory investigating a condition in the filberts. We first found the pollenizers in the Barcelona groves shedding their catkins two months ago. As time went on it became evident that in some groves this would be quite serious, as the amount of pollination material would be very limited. It seemed to us that it might be associated with the unusually dry season that we had this past year.

"After visiting a large number of orchards in Oregon and Washington, there seemed to be three factors bringing this about: (1) vigor of the trees; (2) the crop borne in 1934; and (3) the moisture supply available, which is mainly determined by the types of soil. Where all three factors were adverse, we found the trees practically bare of catkins. In Washington we found DuChilly orchards not only bare of catkins but also with a great amount of dead wood in them. One 9-year-old orchard that bore 1,000 pounds per acre in 1934 was extreme in this condition. We visited some 10- and 12-year-old plantings that were planted at a distance of 10 feet apart. In such orchards almost no catkins were present on any type of tree or variety.

"Those varieties that are commonly known as light producers are almost always vigorous trees and in many cases are also the trees that shed pollen late as a rule. Such trees seem to have been affected very little.

"In the Barcelona, which began shedding pollen some weeks ago, the later development of the catkins indicates low vitality. Instead of developing to the normal size and length, most of the catkins are shed when about one-half developed. An observation of these catkins shows that as they begin elongating the central axis is generally discolored. Often no pollen at all is shed from these catkins as the pollen remains in the dead anthers in a waxy condition.

"We were able to get records on over 30 varieties and on locations from irrigated to shallow, dry, soil."

He had written earlier that in the college orchard a group of better than 20 Red Aveline filbert trees had barely a handful of catkins and those remaining were being shed rapidly. The Red Aveline seemed to be affected worse than any other variety noted, though the DuChilly in some places was very nearly clean of catkins. The Daviana was not quite so badly affected.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"At the present season very heavy inroads of blue mold decay are being found by growers and shippers in Winesap apples as well as in Delicious," he writes in his report for the December 3-18 period. When this decay is found starting at the calyx end the owner associates the loss with washing. In general, poor keeping quality this season is being attributed by growers and shippers to extreme washing requirements, even though the fundamental causes may lie elsewhere.

"The Western Cooperative Oil Spray Project decided that steps would be taken to delete the word 'oil' from the name of the cooperative project. With exception of nicotine, members had found no organic compound satisfactory for codling moth control and this alone generally was inferior to arsenate of lead. Calcium arsenate, when applied in sufficient load was giving promise. In semi-arid districts a safener such as zinc sulphate and line was necessary and to secure an adequate load summer mineral oil was needed. Nicotine sulphate and fish oil as a spray for codling moth was proven ineffective. Nicotinum has given promise. An organic soap such as triethanolamine oleate with mineral or kerosene was found to build up remarkable deposits of arsenate of lead. This deposit is film-like and, unlike other spreaders or stickers, tends not to wash while spraying. Providing it can be used with safety from burning and can be cleaned satisfactorily, the hope is expressed that sufficient loads may be applied positively to stop the codling moth in the first brood. Owing to difficulties in removal found in our work, recommendations for cryolite are limited to two cover sprays.

"At the meeting of the Washington State Horticultural Association at Pullman, Mr. Ryall was a member of the committee to outline the 1935 program of cooperative work.

"During the week of December 10th we made the first examination of Delicious, Starking, Richared and Golden Delicious. The fruit is keeping in good condition, contrary to the general experience of the industry. This season promises to give some outstanding records on the behavior of Delicious when harvested at an advanced maturity."

FRUIT AND NUT PRODUCTION

Elmer Snyder, Fresno, Calif.

"The first grape seeds which were planted in the greenhouse showed germination in 12 days, which is somewhat quicker than in previous seasons. There is a wide variation, however, in the length of time which it takes seed of the same variety to germinate under the same conditions. In previous seasons there has been as much as 80 days difference in the time of germination between seeds of the same variety under the same planting conditions."

FRUIT AND NUT PRODUCTION

Elmer Snyder, Fresno, Calif. (continued)

"The pruning work and connected studies have been in progress during December at the Fresno and Oakville, Calif. experiment vineyards." he writes for the December 10-29 period. "This work was completed at the Fresno station on December 27th. Approximately 30,000 grape cuttings have been made at Oakville and Fresno and are being assembled at the Fresno station for experimental propagation work, and for distribution to State experiment stations and to cooperatores. Grape pruning will be started during January at the Chico, Elk Grove and Shafter test plots.

"As has been previously stated, there is more real interest of the growers in Phylloxera and nematode resistant roctstock than has been shown for sometime. In this section our stock which we have found very suitable for this section is being used almost exclusively, namely, Solonis x Othello No. 1615. Fortunately our preliminary tests over a period of 5 years have shown that this stock also has promise of nematode resistance as well as its known Phylloxera resistance. While growers have not been coming to the Station in the proverbial "steady stream," they have been coming in sufficient numbers and with sufficient interest to indicate that future plantings made by intelligent growers in this section will be on resistant rootstock."

ADMINISTRATIVE NOTES

Purchase of Separates. A small matter of procedure in buying separates from outside publications is causing some difficulty. You know, of course, that purchase must be made through the Office of Information, and that we merely get estimate of cost and send the order to Doctor Auchter for his approval and forwarding through the Chief of Bureau to the Office of Information which places the formal order. The separates are delivered by the publisher to the Distribution Section, Division of Publications, Office of Information, which retains a file copy, sends copy to the Department Library and forwards the remaining copies to the bureau chief, not the author, as the bureau chief has general direction of the distribution of the separates. From him they go to the author's chief and then to the author.

All of this is no doubt clear. The trouble arises from the fact that the Printing and Binding fund cannot pay transportation costs (empress or parcels post) on the separates. Bureaus and authors should, therefore, in initially getting an estimate of cost from the publisher, ask for a quotation on the separates <u>delivered to the</u> Department in Washington. In other words, the estimate of cost should include prepaid transportation. And, please, remember to caution the publisher not to deliver the separates until he actually has the official order from the Office of Information.

ADMINISTRATIVE NOTES

Corrections on Vouchers. There seems to be a little misunderstanding in some quarters in regard to the legal method of initialling corrections on vouchers--especially corrected totals. Our workers are not authorized to initial corrections except on reimbursement vouchers (Form 1012) and payroll vouchers (Form 1013). In the case of vouchers covering the purchase of supplies, etc. (Form 1034) corrections must be initialled by the person (payee) who signed the voucher. If a bookkeeper, secretary or some other official signed the voucher for the company, he must initial the corrected total or any other change. And, of course, where an employee signs for the company, it is necessary that he indicate his title or authority for signing.

Photographs: Outside Use. "With further reference to requests to furnish photographs for reproduction," says B. P. I. Memo. 809, issued by Mr. Richey on December 19, 1934, "B. P. I. Memos. 599, 617 and 792 are cancelled. It seems desirable that in the future only such photographs be furnished to agencies outside the Department for publication as already have been published in either departmental or outside publications. When photographs of this nature are furnished for outside publication, those publishing them should be requested to note that the illustration is reproduced from the bulletin, circular or journal where it appeared, without further credit to the Bureau of Plant Industry or the Department of Agriculture than as it may inhere in the correct citation, thus: 'This photograph is furnished with the understanding that if used it will be noted, "Reproduced from.....".'

"It would appear proper to furnish previously unpublished photographs for use in special articles primarily presenting the results of some phase of our work. Care should be taken not to furnish unpublished photographs which we might wish to use later in an official publication. All previously unpublished photographs contemplated to be used in this way should be submitted to the Office of the Chief of Bureau for approval.

"Official press releases from the Press Service of the Office of Information are official publications and we should cooperate with that Service in so far as possible should they need illustrations. Here, too, however, we should safeguard photographs we may wish to use in connection with our strictly research, technical or extension publications.

"Although the drain on any one division is minor, the aggregate number of photographs being furnished constitutes a considerable item, and it is suggested that whenever more than two photographs are requested they should be handled through the Office of Information and a charge made."

AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE

Division workers were well represented on the programs of the various sections at the Pittsburgh, Pa. meeting, December 27. We are listing below the papers approved for presentation. Some titles were changed slightly for the printed program

Aldrich, W. W. Some factors affecting fruit set in pears.
_____and Work, R. A. Effect of leaf-fruit ratio and available soil moisture in heavy clay soil upon amount of bloom of pear trees.
_____Evaporating power of the air and top-root ratio in relation to rate of pear fruit enlargement.
Auchter, E. C., and Roberts, J. W. Spraying apples for the prevention of fruit set.
Ballard, W. S., and Lindner, R. C. Studies on the little-leaf in Calif.
Beattie, J. H. Some promising sweetpotato seedlings and introductions.
Beaumont, J. H., and Haller, M. H. Relative value of different wetting agents in removing lead residues.
Berry, J. A., and Diehl, H. C. Freezing storage in relation to microbial destruction and retention of quality in sweet cider.
Blank, L. M. A mosaic on cabbage in Wisconsin.
Boswell, Victor R. A study of the temperature, day length and development interrelationships of spinach varieties in the field.
Brierley, Philip. Streak, a virus disease of roses.
_____ Symptoms of rose mosaic.
Clark, C. F., and Stevenson, F. J. Breeding behavior of Katahdin potato.
Cooley, J. S. Infectability with root rot as index of seasonal apple root activity.
_____Relation of host vigor to infection with root rot of apple.
Crane, H. L., Hardy, Max B., Loomis, N. H. and Dodge, F. N. Effect of nut thinning on size, degree of filling and annual yields of pecans.
Crane, H. L., Hardy, Max B., Dodge, F. N. and Loomis, N. H. Effect of bagging on the drop of pecan clusters.
Crane, H. L., Hardy, Max B., Loomis, N. H., and Dodge, F. N. Growth and yield of pecan trees as affected by thinning the stand of trees, and other orchard practices.
Cullinan, F. P., and Weinberger, J. H. Studies on the resistance of peach buds to injury at low temperatures.
Darling, H. M., Leach, J. G., and Krantz, F. A. Scab resistance in potato seedlings.
Darrow, Geo. M., and Dewey, Geo. W. Studies on the stomata of strawberry varieties and species.
Degman, E. S., and Auchter, E. C. Metaxenia studies with apples.
Diehl, H. C., and Berry, J. A. Suitability for freezing preservation of different varieties of fruits and vegetables grown in the Pacific NW.
Drechsler, Charles. A Phythium species of megalacanthum type in cineraria roots.
_____Occurrence of a species of Aphancymeces on spinach roots and flax roots.
_____A new major group of Zygomycetes parasitic and predacious on invertebrates. (Mycological Society)

Gardner, F. E., and Yerkes, G. E. The performance of fruit tree seedlings when dug at different stages of maturity.

Gerhardt, Fisk, and Ezel, Boyce D. Sugar and acidity changes in pears as influenced by variety and maturity.

Goldsworthy, M. C., and Green, E. L. The availability of the copper of bordeaux mixture residues and its absorption by the conidia of Sclerotinia fructicola (Wint.) Rehm.

Griffiths, David. Acceleration of flowering of daffodils and iris.

Haller, M. H., Beaumont, J. H., Murray, C. W., and Cassil, C. G. Lead residues and their removal as influenced by spray.

Harding, Paul L. Pecan storage with special reference to breakdown.

Harley, C. P., Masure, M. P., and Magness, J. R. Fruit thinning and biennial bearing on individual main leaders of Yellow Newton apples.

Harmon, F. N., and Snyder, Elmer. Grape root distribution studies.

Haut, I. C., and Gardner, F. E. The influence of pulp disintegration upon the viability of peach seeds.

Magness, J. R., Status or orchard soil moisture research.

Miller, Erston V., and Brooks, Charles. Relation of storage temperature to reductase activity in lemons.

Nixon, Roy W. Metaxenia in dates.

Roberts, John W., Pierce, L., Smith, M. A., Dunegan, J. C., Green, E. L. and Goldsworthy, M. C. Copper phosphate mixture: A promising fungicide.

Rose, D. H., Haller, M. H., and Harding, P. L. Relation of temperature of fruit to firmness in strawberries.

Ryall, A. L. Certain physiological effects of carbon dioxide treatments on Italian prunes.

Schuster, C. E. The relation of leaf area and shoot length to nut production of walnuts.

Shapovalov, Michael. Chemical splitting of the tomato "combination streak" virus complex.

Snyder, Elmer. Breeding for seedless vinifera grapes.

_____and Harmon, F. N. Vinifera grape cion influence on Dog Ridge stock.

Steele, T. A., Waldo, G. F., and Brown, W. S. Conditions affecting cold resistance in strawberries.

Stevenson, F. J., and Whiteman, Elizabeth Fuller. Cooking quality of certain potato varieties as influenced by invironment.

Swingle, C. F. Hormones in relation to healing of wounds.

Thompson, Ross C. Some soil conditions affecting lettuce seed germination.

Traub, H. P., and Robinson, T. R. Maturity and quality of acid citrus fruits.

Weinberger, J. H., and Cullinan, F. P. Nitrogen intake and growth response in peach trees following fall and spring fertilizer applications.

Weiss, Freeman. A fungus spot of azalea flowers.

_____and Thelma Post. Bottom rot of calla rhizomes.

Whiteman, T. M., Wright, R. C. and Griffiths, David. The forcing of Paper White narcissus bulbs after storage at various temperatures.

Yerkes, G. E., and Gardner, F. E. Dormant rose plants as affected by temperature and humidity while in storage.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., February 1, 1935 No. 3

Grapes "A recent inventory made at the end of the past year," writes Elmer Snyder from the U. S. Experiment Vineyard at Fresno, Calif., "indicates that we have 1133 grape varieties under test in our experimental vineyards. This total includes 338 American Native varieties, 95 Franco-American Direct Producers, 136 Phylloxera-Resistant rootstocks, and 564 varieties of Vitis Vinifera. In addition, the grape breeding records include between 400 to 500 individual fruiting vines.

"The year 1935 marks the completion of 32 years of data with many of these grape varieties," he continues. "The tests conducted with American Native varieties indicate that there are some of these which are of value under California conditions, especially when grafted on Phylloxera-resistant rootstocks.

"The low quality and poor resistance of the Franco-American Direct Producers have proved this group worthless under present conditions in the grape industry...As a result of our continued tests, the Phylloxera-resistant rootstocks adapted to California grape sections have been confined to a limited number. The question of resistance to nematode injury confines the rootstocks to a still smaller number. Among the vinifera varieties, many have been tried in order to find a few which have a commercial value. There is a tendency towards diversification in table grape production.

"Practically all of the newer varieties now grown commercially resulted from our own introductions or from preliminary tests in the Department's experiment vineyards."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Raising The Wind! A little more than a year ago, December 15, 1933, to be exact, the NEWS LETTER announced the granting of Public Service Patent No. 1935590 to Edward A. Gorman, Jr. of our staff. This patent made available for public use a wind operated rotor which can be mounted on the top of a refrigerator car--or storage house--to provide a means for circulating air in enclosed spaces. The improvement has met with so much favor that the Press Service is giving it a little wider publicity.

"A simple, inexpensive, wind-driven fan to circulate air within railway refrigerator cars promises to cut losses of fresh fruit and vegetables by maintaining more uniform temperatures in the cars both in summer and winter," says a statement sent out to papers the middle of January. "The device, developed by the United States Department of Agriculture has been granted a public service patent. Department officials believe it will be of value to producers, shippers, railroads and consumers.

"The fans, two to a car, are driven by small 'windmills' on the roof and will operate in a wind with velocity of as little as 4 or 5 miles an hour. There is no reason why the fans cannot be used on storage houses, says E. A. Gorman, Jr. of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, who invented the device.

"When the heating or cooling of refrigerator cars to the proper temperature depends upon the natural circulation of air alone, the variation in temperatures is too great. When temperatures at the top of the car are at the right level, they are too low at the bottom of the car. The Department's air circulating device forces air at the top of the car through an air duct to each end of the car where it passes over ice in the warm months and over heaters in the winter.

"The fans were developed originally to provide more even temperatures in cars carrying fruit from the west coast to the east during the winter, when cars must be heated.

"Maintaining fruit and vegetables at the right temperatures during shipment in the winter months has become as great a problem as during the summer, according to Durward F. Fisher, who is in charge of the fruit and vegetable handling, transportation and storage investigations of the Bureau of Plant Industry."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"Delicious, Richared, Starking and Golden Delicious were tested for quality after ripening," he says in the report for the December 19-January 12 period. "An interesting observation in these lots was that vascular water-core in the third picking disappeared in lots delayed for 6 days in the orchard before storage to a much greater extent than where the fruit was stored immediately. The quality of Golden Delicious had progressed approximately to the same degree as was observed in the latter part of January in 1933.

"The apple industry in Washington has continued on its downward slide into the Valley of Depression. Very heavy shipments were forced during the month of December through the ripe condition of Delicious and Stayman in cold storage and Winesaps in common storage. Winesaps in fairly good condition are bringing back 70¢ or less per box whereas Stayman and Delicious in over-ripe condition are being sold on the eastern auctions at prices which realize little more than the freight costs. Many lots which have been repacked on account of decay arrive in eastern markets with still more decay....Repacking has been more common during December than has been the case in many years. Growers and shippers are prone to associate the extensive decay, especially where it appears at the calyx or lenticels, with extreme washing programs necessary to meet the spray residue tolerance.

"At the Field Mens' Association meeting January 12, a forenoon was devoted to a discussion of this problem, with an extensive display of material where, for the most part, the spray, washing and handling programs were known. While human fallibility in controlling washing solution concentrations, temperatures and renewals could be pointed out as contributory causes of decay in many of these lots, the fact still remained that it was the exceptional lot where picking up windfalls, delay in the orchard or high storage temperatures were not also to be associated with the exhibits of distress.

"The Washington State Experiment Station and the Wenatchee Industrial Laboratory have made tests to show the action of various soaps, used as spreaders in spray programs, upon the solubility of arsenate of lead and it was shown that some soaps are more active than others. The conclusion was reached that most soaps are incompatible with arsenate of lead and cause some breaking down. We have observed slight lentical injury, which became severe after washing, on Winesap apples sprayed with a fish-oil soap, and there was no other deduction to be made than that the spray program was the major contributing factor in this particular case."

DISEASES OF TRUCK CROPS

Pea Diseases Peas are subject to a number of diseases, several of which may cause serious injury and loss. A publication dealing with the subject has been needed for some time and we finally have it--"Pea Diseases and Their Control," by L. L. Harter, W. J. Zaumeyer and B.L. Wade, issued as Farmers' Bulletin No. 1735. A foreword gives an excellent summary.

Ascochyta blight, it points out, is seed-borne. "Seed grown in the Northwestern States is practically free from the disease germ and should be obtained for planting if available. Refuse left in the field after the crop is harvested should be plowed under and the peas rotated with other crops.

"Bacterial blight is a seed-borne disease, and the same methods of control as for Ascochyta blight should be practiced.

"The wilt organisms are seed-borne to a slight extent. They live almost indefinitely in the soil, so that crop rotations is of no great value. The only control of the disease consists in the use of resistant varieties, a number of which are available.

"Root rots are caused by a group of several organisms that live a long time in the soil. They cannot be entirely controlled. The losses may be reduced by planting on well-drained soil, by careful preparation of the soil, by maintaining a continuous growth, by the use of the proper fertilizer, and by a judicious crop rotation.

"Root knot is caused by a parasitic eelworm that inhabits the sandy soils of the Southern States and California. It causes swellings and galls on the roots of many crops. Some of the cowpeas, grasses, and cereals are resistant and should be used in rotation. Many weeds are susceptible and should be destroyed by clean cultivation.

"Powdery mildew produces a white, talclike powdery growth on the leaves and other parts of the plant. When control measures are necessary, dust with sulphur. The first application should be made when the disease first appears. Several applications may be necessary to hold the disease in check.

Septoria blight, anthracnose, and downy mildew are three diseases that do not occur commonly. They rarely require the application of control measures, and none are recommended. Seed grown in the Northwestern States is more nearly free from seed-born diseases than that grown in the East and should be used for planting when available."

Peas are now grown in practically every part of the country, and form an important part of the diet of our people.

FRUIT AND NUT PRODUCTION

Quod erat Demonstrandum This old Latin Phrase, meaning "I'm from Missouri," has been adopted as the motto of a lot of people. I am beginning to believe that Darrow and Company had such folks in mind when they inaugurated their campaign to create new and better strawberries. Several new strawberries, already introduced into commercial culture, are showing 'em!

"Freshness like the breath of spring," is the enthusiastic comment of one Michigan nurseryman on the Dorsett, for example, referring to its "bright, flame-red appearance" which makes it "sparkle" as if "electrified," an appearance which coupled with generous size and uniformly perfect shape marks the Dorsett as one of the Shirley Temples of the strawberry world. "But we had a new treat when the berries reached the taste-test," declares this nurseryman. "They have an absolutely new, tantalizingly delicious flavor as light and airy as their color."

The Dorsett, in his opinion, sets a new standard which places it ahead of all others for keeping and shipping. In comparative tests he has found that it outruns and outyields the old Premier, withstands drought, excessive rains and frost better than the standard sorts, and is so 'peppy' that poor soils do not hold it back. "Dorsett plants possess extra long roots and heavy crowns, which furnish the vitality to set a larger crop of fruit than the Premier, and ripen every berry evenly, maturing them to greater average size and greater beauty than the Premier. In firmness of flesh and skin Dorsett again ranks ahead of Premier. The berries do not bruise, fade or darken even after being held several days or shipped long distances....They always look fresh-picked....In actual tests Dorsett berries placed on eastern and central markets last summer brought higher prices than all other varieties. By comparison the average selling price was 65 cents per crate higher than Premier, and 89 cents higher per crate than other common sorts."

The same man has a few conservative words to add concerning the Fairfax, another of our new strawberries, which he describes as "a jewel in the realm of berries." It has, in his opinion, a "royal flavor"--"A real tang of the wild, tempered with the richness and mellowness of its English ancester--Royal Sovereign--combine to make the Fairfax the aristocratic dessert berry." He adds, simply, after speaking of its brilliant appearance, larger size, and superior quality; "Everyone is willing to pay extra for berries that LOOK BETTER, TASTE BETTER, and ARE BETTER!"

And, as Aunt Jemima says, "Ain't it the blessed truth!"

FERMENTATION AND BACTERIOLOGICAL STUDIES

J. A. Berry, Seattle, Wash.

"Attendance at the Convention of the Northwest Canners and Barrellers in Portland, January 4, 5, and 6, and the putting on of an exhibit of frozen pack fruits and vegetables in connection therewith, are the big items in our activities of recent date," he writes on January 7. "Our material came to the exhibit tables in good shape, and I think created a great deal of favorable comment. Certainly there was no lack of interest. The different varieties of raspberries, blueberries, etc. were studied very carefully by some of the delegates....

"Some very interesting talks were presented, including one by Jim McConkie on a new corrosion-resistant type of can which (in actual tests over a long period) greatly minimizes trouble in acid fruit packs. The only fault of the new material is its softness, but it is hoped this can be remedied.....

"In the laboratory we have started studies on the keeping qualities of frozen berries after 6 months freezing storage. Cans at room temperatures (these are strawberries) show no swelling 11 days after withdrawal.

"Additional information on the death rates of yeast in sirup at different freezing temperatures is slowly becoming available. I shall be able to make a report on this in another month. The figures are already interesting."

He had written earlier: "some interesting results on the death rates of yeasts in sirup solutions which over a 4-month period at subfreezing temperatures have become available: Using 500 cc portions of inoculated sirup at -5° and 20°F. it is quite apparent that the yeasts are killed more quickly at the higher temperatures. Roughly, the 'kill' for the lower temperature is, at 4 months, 60 percent, and at the higher temperature, 90 per cent.

"In regard to the carbonation of frozen pack berries: No great change in the destruction rate of microorganisms has been effected by the addition of 0.5 gram solid CO_2 to the No. 2 can--all the can will stand. Some of our carbonated packs have been under observation for 6 months, and the picture is now clear enough.

"Some blackberries packed 3-1/2 years ago in airtight containers and stored continuously at 28° F. are still astonishingly good. This is a case of cold storage rather than frozen pack, for ice never formed in the pack."

POTATO INVESTIGATIONS

There must be something in this idea that it is better to give than to receive. At least a picture in the Denver Post in connection with the award of prizes at the Annual Farmers' Institute and County Seed Show held at Greeley, Colo. the first week in January would seem to indicate this. It shows our friend W. C. Edmundson handing out prizes to the winners of first place in the potato and beans exhibits, and his smile rates a good 44 percent higher than those of the men receiving from him the championship cups!

Incidentally, W. C.'s display received a lot of praise. The Greeley Tribune for January 3 said: "W. C. Edmundson in his exhibit for the Colorado Potato Experiment Station here, has an excellent display of seedlings grown at the farm, there being 58 trays of new varieties, most of them as yet unnamed and still being tested. A number are first year from seed and will have to be grown for a number of years before their fitness for commercial growing will be established. Most of them are expected to fall by the wayside. One of the interesting features is the variance of seedlings showing the influence of parental blood. Crosses of russet have such a russet skin as to be undesirable.

"The new Katahdin seedling which got into the 700-bushel-per-acre class on the Western Slope this year, is shown in two samples, one from the experiment farm and one from high altitudes. The spud has been widely distributed in this State and is meeting with considerable favor. The variety is quite resistant to disease, both of the virus and blight form. Edmundson's large exhibit is attracting a great deal of attention at the show."

There were 82 exhibitors, '30 in the potato competition, the largest of the show. W. C. reports that the seed show was not quite as large as it has been in past years, but that the quality of the potato exhibits was very good--and he should know, as he was the man appointed to judge the potato exhibits! The grain exhibits were below par, and the corn displays nothing to brag about. The weather was rather unusual--about the sort Greeley usually has in October.

January 21 he wrote: "The land of perpetual sunshine has had a decided change in the weather. Saturday about 1 inch of snow fell. This is the first moisture we have had since last summer. Saturday night the thermometer dropped to 17 below zero--and on the 21st to 27 below. The potato market remains about the same, dealers paying $1.25 per cwt for Triumphs and 65¢ for Rurals."

POTATO DISEASES

Electricity in Tuber-indexing

Considerable interest has been shown in Theodore P. Dykstra's demonstration, in connection with his potato disease work for the Division at Corvallis, Ore., that electrical hotbeds are practical in tuber-indexing work where electricity is fairly cheap, as it is in Oregon.

Tuber-indexing is probably the most effective method of eliminating diseased, weak and low-yielding potato tubers from seed stock intended for planting in the seed plot. The work is usually done in winter, the first step being to select as many tubers, each weighing from 7 to 9 ounces or thereabouts, as greenhouse, hotbed or outdoor space will accommodate. The next step is to number each tuber for identification and then remove a seed piece or set from each, preferably from the seed end, although any strong eye will serve.

This is put in a suitable-sized pot (the 3-1/2 or 4 inch size is satisfactory), or it may be planted in a greenhouse bench or hotbed. In either case the set must be labeled with the number of the tuber from which it was taken. The plants produced from these seed pieces are carefully observed for virus diseases such as the various types of mosaic, leaf roll, spindle tuber, giant hill, and the yellow dwarf. All plants showing any of these diseases or any sign of weakness are noted, and the seed tubers from which the sets were taken are discarded. In this way it is possible to get rid of most if not all of the diseased tubers before planting them.

"Tuber indexing," says a Press Release discussing this work, "is a way of weeding out potatoes that carry infectious virus diseases in the tubers. A commercial grower does not, as a rule, try to index potatoes which he plants to harvest for commercial seed. Instead he indexes the tubers for the small area he plants to provide his own seed for the following year. To 'index' a potato, he cuts out one eye from a selected tuber and grows this sometime during the winter, keeping a record or index of each eye and of the potato from which it came. If one of the young plants grown in this way shows symptoms of a virus disease, the original tuber is discarded.

"In the past it has been necessary to plant in pots and grow the test material in a greenhouse and not many growers have found this practical. T. P. Dykstra, experimenting in Oregon where electrical current is cheap, has found that it is practical and satisfactory to test indexed tubers in an electrically-heated hotbed. Some commercial growers have followed this lead in indexing varieties which are especially susceptible to virus diseases, but otherwise desirable."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"A meteor passed over Fayetteville about noon on December 26," he writes, "and came to earth near Farmington, where one farmer recovered a 5-pound fragment in a field. Many local citizens reported hearing the noise and seeing the smoke trail of the meteor. The local papers report that the meteor was seen in Kansas, Missouri and Oklahoma as well as in Arkansas.

"A news item in a local paper states that according to Federal crop statistics, the farmers of Arkansas received $10,801,000 more for their drought-blighted crops in 1934, than they did for their bumper crops of 1933."

Leslie Pierce, Vincennes, Ind.

"Another mark of merit in favor of our zinc-lime spray has been called to my attention by Dr. C. T. Gregory, Department of Botany, Purdue Experiment Station.

"According to Doctor Gregory, growers of carnations in the northern part of Indiana during the past 4 or 5 years have been using with excellent results a 3-4-50 zinc-lime mixture to control leaf-spot disease which has been causing considerable damage. Before beginning the use of the zinc-lime spray to control the disease, one grower, Mr. Wm. Beyer, Crown Point, Ind., in a single season lost $10,000 worth of carnations from bacterial leaf-spot damage. In the 4 or 5 seasons that he has been using the zinc-lime spray, the damage to carnations caused by the disease in his greenhouse has been negligible."

J. R. Cole, Shreveport, La.

Writing concerning pecan production and prices, he says that the Skannal and Fullilove orchards produced about 50,000 pounds each. "The Georgia Giant variety came through for the Skannals again. For 10 years prior to 1930, scab destroyed the crop of nuts each year, altho the trees set heavy crops.

"I began spraying the trees in 1930 and saved the crop of nuts. A check tree was left for comparison, and the nuts from this check tree were almost a total loss. I sprayed for scab the two years following, and there was less scab even on the check tree. In 1933 and again in 1934 there has been no scab on these trees, even tho 1933 was one of the wettest years in history here. Therefore I am unable to explain the apparent disappearance of scab on the Georgia Giant variety."

FRUIT DISEASES

Paul W. Miller, Corvallis, Ore.

"Histological studies on the mode of entry and the intimate relations of Phyllactinia coryli, the cause of filbert mildew, to its host were carried on during the week," he writes on January 12th.

"It was found as a result of the studies that this fungus penetrates the tissues almost entirely through stomata. However, only a limited development of a fungus mycelium within the host tissues occurs, infection being confined largely to the spongy parenchyma cells about the stomata. The limited development of the fungus mycelium within the tissues probably accounts for the small amount of damage that this fungus commonly causes in a normal season."

ULTROPAK STAND

John C. Dunegan writes from Fayetteville, Ark. on January 12, of a very satisfactory stand he has devised for the Ultropak.

"Considerable time was spent on photographing various types of peach rust pustules on specimens from various parts of the world," he says in his report for the week ending January 12th. "The photographs were all taken with the Ultropak equipment and as a by-product of the work this week I converted my old B & L microscope into a very satisfactory stand for the Ultropak.

"The Conversion was accomplished by merely removing the stage, condenser, and iris diaphragm. These parts were bolted to the stand and can be put back should the need for a second microscope arise in the future, while in the meantime I have devised at no expense a stand for the Ultropak which is equivalent to one sold by E. Leitz for $116.00."

FRUIT AND NUT PRODUCTION

George F. Waldo, Corvallis, Ore.

Writing for the December 24-29 period, he tells of the examination of canned strawberries, including all selections of canning strawberries from the breeding work at the Corvallis, Ore. More than 200 cans were opened and carefully examined.

"Out of this number," he comments, "about 15 were selected as being equal to or better than the best varieties of canned strawberries now grown."

BULB INVESTIGATIONS

The New Year appears to be starting quite well for Doctor Griffiths. January 10th he delivered not one, but two lectures on lilies at the Ohio State Short Course for Florists at Columbus. Resting up one day, he was on hand for another lecture on lilies at the Morris Arboretum of the University of Pennsylvania. He got back to Washington just in time to be moved bag and baggage to the new Horticultural Building at Beltsville, Md.

"While at Columbus," he tells us, "it was reported that two firms this past year have been putting bulbs on the market which have received storage treatment according to the formula developed by our Division. The bulbs are sold on the basis of early flowering quality. Some such stocks were on exhibit at the meeting."

ADMINISTRATIVE NOTES

Rental Agreements for all Services Other than Personal.--Our Business office calls attention to the necessity of executing short term rental agreements for all services other than personal (such as laundry, ice, hiring of mules, spraying machines, etc.) that extend regularly over a period of more than 3 months. In the event that such services are required only intermittently, a statement must be attached to the voucher explaining that the service is temporary.

We have recently had a number of vouchers for such services which had no explanatory notes attached to show that the service was temporary and consequently payment had to be held up pending the receipt of the explanatory statements. If, therefore, you will make sure to attach a brief statement to the voucher showing whether the service is temporary or not, it will eliminate unnecessary correspondence, and expedite the payment of the voucher.

Field representatives are also again reminded to give formal notice to contractors in terminating all short term rental agreements or utility contracts. Termination of telephone contracts requires a supplementary contract. To terminate a lease the Solicitor's office is required to prepare a supplementary agreement which must be signed by both the lessor and the lessee. The Business Office should be advised immediately of any contemplated terminations, in order that the proper action may be taken.

STRAIGHT PERMANENT FURROWS ADVISED FOR IRRIGATING CITRUS ORCHARDS.

In a statement to members of the western section of the American Society of Agricultural Engineers at Corvallis, Oreg. on December 28, C. A. Taylor of the Bureau of Agricultural Engineering of the Department, pointed out the advantages of straight permanent furrows for irrigating citrus orchards where cultivation for water conservation is limited to weed control, and where the use of the same furrows or checks for more than one irrigation is practiced, says a release from our Press Service.

"With permanent furrows, it is possible in one operation to control weeds and to prepare furrows for irrigation with the least possible disturbance to soil. This is desirable, since stirring the soil, especially when it is moist, breaks down its structure and reduces its capacity to absorb water. In this way water can be spread over the land more uniformly and more efficiently and with less danger of over irrigation. Furrows can be made broad and shallow so that more of the fertile top soil is available to feeder roots. Compaction of soil, although unavoidable, is minimized.

"To get the best distribution of water and nutrients in the zone of greatest feeder root concentration, use as many furrows as possible, says Taylor. Because there is a ready cross transfer of water made throughout the tree and because any root may deliver water to any branch, water need not be applied in each furrow at each irrigations. It may be applied in alternate rows, in alternate groups of furrows, or even between alternating rows of trees. Alternate irrigation is a safe means of drying the soil close to the wilting point and permits relatively long intervals between irrigations and economical and efficient practice.

"With a number of furrows, unavoidable packing of the soil by wheels may be confined to two definite furrows which may be put to good use. The wheel furrows or lanes can serve as lead ditches to carry water which, at different points along their length, may be cut in to the more absorptive furrows in which wheeled implements are not operated.

"For weed control and for building of permanent furrows, Taylor has developed sweep attachments which clear the furrows of weeds and other debris without breaking them down. This operation permits the free flow of water in the furrows. The sweeps are drawn through the furrows when the soil is dry before each irrigation. The cutting may be as little as 1/2 inch, or as deep as desired. To get the best cutting action when disk harrows are used for incorporating bulky organic matter into soil for fertilization, disks are set at a large wide angle and the implements are equipped with 12-inch rollers to limit the cutting depth to not more than 5 inches. Unless equipped with rollers, the harrows disturb and pull away too much soil from under trees where it is usually soft. Minimum disking conserves the feeder roots of the trees. In most groves, the cover crop of weed growth is disked under as soon as the ground is dry enough to be worked in the spring."

DISSEMINATING RESEARCH FINDINGS

The annual report of the Department's Director of Information takes note of the fact that there has been some comment in the newspapers and elsewhere on the supposed conflict involved in continuing research while seeking to reduce or control farm output.

"Department officials, but not always the public," says Mr. Eisenhower, "understand that the purpose of research is to promote efficiency, to lower production costs, widen markets, develop new uses for farm products and by-products, improve quality, and raise farm living standards. Efficiency in this sense does not necessarily mean larger total production. There is no inconsistency in regulating the total output of the farm and at the same time producing that output at the lowest possible cost."

He adds that one reason for the failure of the general public to understand this lies in the fact that we cannot under present conditions publish research findings promptly and in full. This is even truer now than in the past, since the pressure of emergency work at the Government Printing Office must necessarily lead to the shelving of many research manuscripts. The fact remains, however, that expenditures for research are not fully justified until the usable results are made available.

This being the situation, the annual report of the Chief of the Bureau of Plant Industry offers, in the section on publications, some statistics reflecting credit on our Division. It reports that the Bureau of Plant Industry as a whole contributed 140 papers to Department series and 377 to outside publications. My check shows that of the total of 517, 228 were prepared by members of our staff. Better still, of the 228, but 34 were printed officially, showing that we have been making a very successful effort to get our research findings in print promptly, regardless of official limitations on publication.

This list of 228, of course, does not include the 25 or so informal papers, multigraphed or mimeographed for distribution. (Incidentally, F. L. Mulford stops by to inform us that the "Hyacinths" paper credited to him in the list of such informal papers carried in the January 1 NEWS LETTER is not one of his contributions. He is correct, as usual. The paper should have been listed as "Hydrangeas.")

Also, and still incidentally, it rather amazes me to realize that these 228 published papers, the multigraphed and mimeographed papers, and the other publication work of the Division received editorial and other attention by W. W. Gilbert and Ellen G. Bulger of our editorial section. There must be a trick in it; they probably use mirrors!

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., February 15, 1935 No. 4

Efficiency--That's all! A collector of antiques noticed in an old shop a cat lapping milk from a valuable saucer. He immediately began to talk to the dealer--about the cat. He finally purchased the animal for $20. Then, walking about with the cat in his arms, he remarked casually: "You know how it is--cats get lonesome without some familiar object near them. I guess I'd better take along that saucer. I'll give you a dollar for it." The dealer shook his head. The collector raised the offer to $5. No. After some further haggling, the collector in desperation raised his bid to $100. "No," said the dealer. "You couldn't buy it for $1,000. Already from that saucer I've sold 5,000 cats."

True efficiency is usually along simple lines, whether one is speaking horticulturally-or merely categorically. For example, the universal method of harvesting commercial citrus crops is to cut the fruits from the trees with clippers. Thus, clipper cuts occur and sometimes stems are left long enough to cause injury to other fruits in harvesting, grading or packing. Such wounds, you see, allow the entry of the blue and green molds that cause decay.

So what? So our investigators looked into the matter and found in Florida that mature grapefruit can be pulled from the tree without injury to the peel, and that fruit so harvested will suffer less from stem-end rot in common storage than clipped fruit. Since pulling is faster, and cheaper, than clipping, there seems to be good reason for making it the standard practice for grapefruit at least. In fact, Florida grapefruit growers wouldn't take $1,000 for the discovery. From it they expect to sell--but, saucily speaking, you can finish the story yourself!

FRUIT AND NUT PRODUCTION

W. R. Barger, Indio, Calif.

Writing from the U. S. Experiment Date Garden at Indio, Calif., where, as the poet says, "the breeze is sometimes gentle, and the cows are always Kine," W. R. wonders pathetically whether, so far as date growing is concerned, our light has gone out under the bushel!

His concern is brought about by an item in the Riverside, Calif. PRESS of January 19, 1935, in reference to the agricultural census being taken in the Coachella valley as part of a nation-wide census. The blanks used, it appears, have no provision for reporting on date production. Worse still, when one of the enumerators turned in a report with date records written in the most available space, the report was sent back with the advice that Citrus trees only should be listed and that he should "not waste time and confuse the report with unimportant side lines."

Unimportant side lines! Yes, that's the sort of red rag they have been waving in front of W. R. "Date production in the Coachella Valley, harvest of 1934," he writes, "was 6,226,325 pounds according to County Agricultural Commissioner's record. Production is increasing one and a half to two million pounds a year. The American production represents 90 percent of the high quality dates offered to the American public, and 25 percent of the market supply of dates in small clean packages."

Better still, of course, this production represents a relatively new crop. We still import some 50,000,000 pounds of dates each year--47,822,000 according to the 1934 Yearbook of the Department. We do not expect to replace all of this importation with American-grown fruit, because our growers are specializing on quality product and pack. But we do expect to bring about a tremendously increased use of dates by the American people as they learn more fully of the high food value of dates--and that an American-grown, quality pack, clean and wholesome is available. At present, of course, the production in this country is scarcely more than enough to supply the Pacific Coast, but each year the crop is reaching out into new regions farther East.

A decade or so ago, the date palm was not much more than a botanical curiosity in this county--in fact it still has that status with most of our people. But in the Southwest it has become the basis of one of the most promising new fruit industries. By reason of our efforts to secure and test all of the leading date varieties of the world to find those best suited to American conditions, we now have in the Division's experimental gardens of the Southwest a larger collection of varieties than can be found in any Old World Oasis. And we have introduced new and improved methods of growing and handling--not the least of which is W. R. own handling and storage system, making dates practically a staple product instead of a very seasonal one.

DISEASES OF ORNAMENTALS

Frank P. McWhorter, Corvallis, Ore.

"What is truth? said jesting Pilate; and would not stay for an answer." At least that is what Bacon tells us. What is Dioxon? asks Frank McWhorter; and he does not wait for an answer either. He gives one himself--to wit, and viz.:

"With the aid of a technician made possible through unexpected funds and with the aid of the Dioxon slidemaking process which cytologist Weir brought to us, we can report for the past month some 600 serial section slides representing over 100 embeddings made with the purpose of answering some of the moot questions relating to bulb viruses and diseases." he writes January 2.

"Now, what is Dioxon? Chemists call it DIETHYL DIOXIDE. Let us call it a technician's dream. Here is why: Drop any kind of non-woody tissue in any ordinary fixative; wash if necessary, then put directly into Dioxon. Leave it a few hours or over night, then drop it into melted paraffin, leave a few minutes and embed immediately! Results will be perfectly marvellous or perfectly rotten; generally marvellous. In making the above slides we used about one liter of Dioxon at a cost of 56 cents! The Dioxon is put in a bottle with calcium chloride and as a result, the Dioxon takes the water out of the tissue, the calcium caloride dehydrates the Dioxon--and we approach perpetual motion. Professor Weir and I will publish an account of 'just how' in SCIENCE.

"From these slides we have gained a fuller understanding of what constitutes a virus condition in Narcissus. The leaf mottle and blue island remnants (accepted external criteria of narcissus mosaic) are expressions of the depressing action of the virus on final chloroplast formation and activity; we know this since the tips of even severely mottled leaves appear uniformly green. The characteristic mottle is by no means the unique and specific symptom of mosaic in Narcissus. From a former study of frozen sections we had determined that the prominent ridges in some varieties when mosaic diseased are indeed virus effects. From these paraffin sections we can prove their origin. They arise, not from cell arrangements within the leaf and from meristematic epidermal specialization as do the normal vein ribs, but principally from true epidermal hypertrophy and hyperplasia.

"The epidermal cells enlarge, elongate, grow down and up, replacing the epidermis proper with a tongue of vacuolate cells. Similar changes in neighboring chlorenchymatous cells follow and the enlarging mass forms the rib or ridge. We have previously listed bronzing as a possible virus symptom, but observed that bronzing is usually accompanied by fungus penetration. The full explanation is now apparent for the hypertrophied epidermal cells literally kick-off their original cuticular membranes during the enlarging process and expose thinwalled cellulose areas. Not only is the cuticle disrupted but the guard cells of the stomata are pulled asunder. These changes permit water loss and easy entrance of Stagonospora and other fungi. This explains the quick wilting of mosaic

DISEASES OF ORNAMENTALS

Frank P. McWhorter (continued)

leaves and flowers. We find that every variety of Narcissus tested exhibits ridging of virus origin; in some the ridging is extreme; in others it is only apparent as microscopic misbehavior of the epidermis.

"We hoped that the difficulty of diagnosing narcissus mosaic by external observation, and the even greater difficulty of proof by inoculating test plants and waiting a year for results, might be eliminated by cytological tests involving 'X bodies' demonstrated by the Dioxon method. As negative evidence, our unstained Talma and Rocky Mountain Narcissus material under critical illumination showed no organized X bodies and little organized striate material. Our new observations have shattered the dream of narcissus mosaic diagnosis by X-body determination.

"Sometime ago Doctor Kunkel sent us type plants of his famous Hippeastrum equestre. They yielded sickly plants with a mottle more characteristic of the 'Yellows' than of mosaic. Last spring we sampled the Hippeastrum by fixing material for future use. In the beginning of this Dioxon technique series we embedded some of this material and found it full of gigantic vacuolate bodies just as Kunkel and others had described. The paraffin slides were not perfect and we decided to pickle fresh material, using the same fixative. We ran a careful series with single-lined plants in various degrees of yellowing and mottle. We got almost perfect slides but no X-bodies! Material from these same plants pickled a year ago is full of X-bodies. We do not know on what factors the formation of these may depend. It is not a question of faulty technique. It follows that if X-bodies come and go in the classic Hippeastrum, how can they serve as signposts for disease in unknown Narcissus?

"Quickly made Dioxon slides have proved an excellent means of differentiating between mite-injured and virus-injured Amaryllis plants. Mr. Doucette sent us some for our virus disease collection. We entered them as 'mild mosaic,' and as such they have continued. Mr. Doucette hot-water treated his lot and cured them of the virus! The Dioxon slides show that epidermal changes plainly resulting from insect feeding account for the mosaci-like pattern!

"One of our most important greenhouse activities is the building up of stocks of bulb seedlings of known history. These are to determine whether the viruses are seed-borne, and to furnidh virus-free material for decisive work on virus types. Mr. Millsap reports that in the case of Iris seedlings (and we have grown thousands now) not one case of seed transmission is apparent. One startling case is the beautiful Iris Ricardii. This is a terribly mottled plant Doctor Brierley brought here from a California Iris specialist. From this plant Mr. Millsap has developed six fine seedlings with dark green leaves--these may bloom this year....We have a crop of lily seedlings ready for use this season in our virus work. Equally important is a large group of Regals selected from plants apparently resistant to, and undoubtedly susceptible to, 'fire,' to determine the inheritance of these factors...We have completed the lily virus-to-tulip cycle by successfully inoculating virus-free lily seedlings with pure color-removing virus from tulip...Yes, we are keeping busy."

FRUIT AND NUT PRODUCTION

A. D. Shamel, Riverside, Calif.

"The Washington Navel orange harvest in southern California is now fully under way and the crop is apparently a larger one than the earlier estimates indicated," he writes January 28th. "The present estimates, based upon picking data, are at least 25 percent greater than those as of the first of the year. In Tulare country central California the Washington Navel crop was first estimated as 4,500 carloads, and the crop turned out to be over 11,000 cars. While this record of increase is not likely to be duplicated in southern California, there is a considerably larger crop than was anticipated until picking records revealed the larger number of boxes. This increase, both in central and southern California, is largely due to the large size of the fruit which is running here about 126 to the box average size. Last year the average size was about 216 oranges to the box. While the Washington Navels are much larger than usual, the Valencia orange and Marsh grapefruit in southern California are smaller. It is a rather strange condition and one that arouses frequent comment amongst growers.

"There are rather definite indications of a heavy drop of fruit in those Washington Navel orchards that have not been picked before the blooming period. If this drop occurs the shipments of this fruit from this district will not be quite as large as the present estimates indicate. Growers, almost universally, believe that the possibility of this drop depends upon climatic conditions during the next few weeks. They say that cool, dry weather will result in the fruit 'tightening up' on the trees, while warm, damp weather will result in a heavy drop in the orchards that have not been picked before the bloom."

On January 21st he wrote of an opportunity he had of visiting the section around Vista which is planted extensively to avocados, mostly of the Fuerte variety. "The harvest season for this variety is pretty well along now," he wrote "The trees, for the most part, look to be in good physical condition, and the recent rains are considered to be of great value to the orchards. The trees will bloom in the near future if the present weather holds on--much earlier than normal. Also, I had an opportunity to see something of the selection and propagation of a special strain of the White Mulberry that is being grown in this district for silk worm culture."

January 14th he reported on a study of two Navel orange limb sports in an orchard in the Bloomington district, one of which appears to have some commercial possibilities. It is a late ripening fruit, green when the normal fruits are orange in color. "If the fruit continues to show the late maturity characteristics next spring, I think I shall recommend a small progeny test, probably through top-working on older tree in the same orchard. A late ripening strain in which the fruits are otherwise desirable and the trees productive, would be a valuable addition to the collection of strains now in existence in this region...."

FRUIT AND NUT PRODUCTION

Elmer Snyder, Fresno, Calif.

Writing on January 26th, he reports: "The grape pruning work at Chico, Calif. was completed during the week of January 14th. An average of 236 vines per day per man was pruned at this plot, which included resistant stocks, American native grapes, and vinifera varieties. At Elk Grove, Calif., pruning work was started, grape cutting made, and arrangements made for the completion of the work at that plot.

"Pruning studies were started at the Oakville plot and cuttings of stocks and grape varieties were made during the week of January 21st. The cuttings were transported to Fresno for future use. Growers visited the Oakville plot during our short stay, interested mainly in Phylloxera resistant stock, and the better types of white and red juice grape varieties. In addition, growers in the Napa Valley section had also shown interest in American native varieties for blending purposes..Approximately 700 grape seedlings were transplanted from flats to small paper pot containers. Additional seeds are still germinating and the plants will be transplanted later."

C. P. Harley, Wenatchee, Wash.

"The weather conditions, from the standpoint of the apple tree, are again perfect," he writes January 29th. "We have had a good cover of snow since Christmas, and it is melting this week rather rapidly and most of it is being taken up by the soil."

He had written January 23d: "Last week we experienced our first cold weather of not only this year, but last year as well. Temperatures ran from zero to 3 below, with maximums of about 4 to 5 above. During the past two years there has been a definite trend toward fall and early winter pruning throughout the district. We have not been very enthusiastic about this practice for our results in studying the injury from pruning wounds and perennial canker infections have shown rather conclusively that winter injury is more liable to occur about the pruning wounds made in the fall or early winter than in those cuts made in late winter or spring....The last two winters have been so mild that practically no injury has occurred, but we are not so sure that this good luck will continue indefinitely."

C. F. Kinman, Sacramento, Calif.

"We have had some heavy rains of late and the rivers in this part of the State are approaching the high water mark," he writes January 10th. "On recent visits to Palo Alto I have found that with types of peach trees that hold their leaves very late into the winter, root extension continues much later than with trees of types that shed their leaves at normal peach leaf shedding time. Both types of trees were worked on the same type of rootstock. Here the influence of scion on stock is rather marked."

FRUIT AND NUT PRODUCTION

W. F. Wight, Palo Alto, Calif.

"The present weather has been extremely favorable for deciduous fruit in the South, and even if there should be a considerable number of clear, bright, sunny days from now on, I think the danger point is passed," he writes to Doctor Magness on January 11th.

"There has been more rain already than for the total season last year, and a correspondingly large amount of cloudy weather. Some of the peach orchards, particularly the varieties Muir, Tuscan and Lovell, were so badly injured last year that they put out very little growth, but with the exception of such orchards peaches will apparently have a fair crop this coming year. Some varieties not completely resistant but worked on resistant stocks have held their foliage unusually late this year, in fact, being in full foliage up to the end of December. Just how much significance this may have cannot be definitely determined until the trees in question have passed through several seasons, but I think there is a possibility that certain stocks may have greater value in the South than others, particularly if the variety worked on these stocks possesses some degree of resistance itself.

"Rainfall here at Palo Alto is also much ahead of last year and an abundance of water for irrigation in the coming season is assured. The dormant spray has been finished and the pruning is being pushed forward as rapidly as weather conditions will permit. Topworking of new hybrids from the nursery on old trees will also soon begin."

H. L. Crane, Albany, Ga.

Writing from the U. S. Pecan Field Station and Laboratory on January 12th, he says: "During the past two winters we have lost so many pecan trees in our orchards at Philema, caused to a large extent by winter injury, that it was thought there might be a relation between the stock on which the varieties were propagated and their susceptibility to injury from cold. For this reason, an analysis was made of the data, and no such relation was found.

"During the week several lots of nuts grown under different cultural conditions were carefully sized into groups varying 1/16 inch in diameter. These nuts were cracked and the thickness of the shell of the nuts in the different size-groups determined. It was found that the thickness of the shell on the nuts increases as the diameter of the nut becomes greater. There was found considerable difference in the thickness of the shall of the nuts produced under different cultural treatments, but the relations are inconsistent and are not understood.

"Weather quite warm for this season of the year, with only one light shower of rain."

CHEYENNE HORTICULTURAL FIELD STATION

M. F. Babb, Cheyenne, Wyo.

"The past week we finished cleaning a crop of 18 pounds of orach seed raised last fall in the greenhouse," he writes February 2d. "Orach is a greens crop which seems well adapted to this region and in which much interest is developing among home gardeners and various State institutions that need a large and constant supply of greens for inmates. Spinach is not a very satisfactory crop for this region because it bolts to seed so frequently without making an edible crop. Being a low-growing plant, it is seriously injured by blowing soil and is hard to clean for use. Orach is of upright growth and consequently less injured by blowing soil and far easier to clean. It is about as early as spinach and has never been observed to bolt to seed before reaching edible size. There are two methods of harvesting: The young plants may be harvested whole as with spinach, or they may be allowed to grow continually, in which case only the leaves and tender tips of the branches are harvested, as with New Zealand spinach. In the latter case, the plants develop seed, but this has no influence on the edibility of the foliage.

"Orach has long been grown by European peoples as a vegetable crop. It was known to the Greeks as "Atraphaxis" and to the Romans as "Atriplex." It was introduced into England in 1548. The exact date of its introduction into this country is not known, but McMahon in 1806 mentions three kinds as being in American gardens. Apparently, though, orach never became popular with the English colonists who settled the East and so far as can be determined, the seed is not now listed by any American or Canadian seedhouse. Just how it migrated into this section of the country is not known, but it is now rather widely used as a substitute for spinach, especially by people of German extration. Probably pioneers of German descent either brought seed with them or, knowing of the crop in the old country, sent there for it. Rydberg, in his 'Flora of Colorado' (1906) states that it is to be found growing wild at altitudes up to 7,000 feet in the vicinity of Boulder, Glenwood Springs, La Veta, and Fort Collins, Colo., and observes that it is an escape from cultivation.

"The Cheyenne Station has collected seed from several growers and from the escaped forms and has grown them for comparison with commercial varieties from Europe. There are apparently three commonly known edible types. These are the 'white,' 'green,' and 'red', and refer to the general color of the plant. The white type is the only one which has been found under cultivation in this region and it appears to be identical with the commercial variety 'Triumph' of European seedsmen. Under test at this station, the green (Lee's Gruen Riesen) and red (Blutrote) varieties are equally hardy and drought resistant, but do not have as thick leaves nor are the leaves as savoyed as those of the Triumph. The Station has been testing this crop since 1932 and has sent out seed to widely different parts of the plains country. The majority of our cooperators are of the opinion that it is superior to spinach in ease of culture as a greens crop. We have on hand about 22 pounds of seed and plan to increase this during the coming season in order that we may more widely test it throughout this area."

FRUIT DISEASE INVESTIGATIONS

John C. Dunegan, Fayetteville, Ark.

"The mild weather, a feature of the two previous reports, was rapidly replaced by winter weather on the 21st, with a 50 degree drop in temperature in 24 hours," he writes January 26th. "The cold wave covered the entire State and brought conditions favoring winter injury to fruit trees in the peach sections....

"Four submarginal land projects are planned for Arkansas, according to a statement just released by Mr. Dan T. Gray, former dean of the College of Agriculture, and now Regional Director for the A. A. A. The land in these projects, if acquired by the Government, will be largely devoted to forestry, grazing and game preserves. Mr. Gray pointed out that unless the people were willing to sell the land to the Government at the appraised price the projects could not be carried out."

He wrote January 19th: "The St. Louis Post Dispatch devoted a portion of a column to the death on January 14, at the age of 80 years, of Henry M. Koch, the brother of Dr. Robert Koch, the noted German bacteriologist. Mr. Henry Koch came to America at the age of 16, and after acting as surveyor in Texas, settled in St. Louis in 1870, where he achieved prominence as a merchant and banker. In 1905, he visited his famous brother in Berlin, and in 1907, Dr. Robert Koch returned the visit during the course of a world tour. The item created considerable interest in the Plant Pathology Department, where 'Koch's postulates' are a vital part of experimental procedure."

Howard E. Parson, Spring Hill, Ala.

Writing from the U. S. Pecan Disease Field Laboratory on January 26, he says: "The late cold wave that has swept the country, reached its low of 19° here the morning of January 23. The maximum for January 22 was 25°, above which the temperature did not rise for 26 hours. Enough snow fell to blanket the ground, more than has been seen here for many years.

"Satsuma orange trees that were unheated will undoubtedly completely defoliate. It is too early to tell whether heating has avoided all injury or not. Many growers of cabbage took advantage of the warm spell preceding the cold to set out young plants. Press interviews with these growers indicate that some suffered little damage, while others lost as much as 90 percent of their crop.

"Azaleas and other flowering shrubs are not thought to be hurt much, if not benefitted, thru the blooming period being delayed."

FRUIT DISEASES

Lee M. Hutchins, Fort Valley, Ga.

"Temperatures in central Georgia have continued very cool," he writes February 4th, "and we now have an accumulation of about 800 hours at 45 degrees or below. Hiley twigs that we bring in from the orchard are coming into bloom in the greenhouse. The weather is still cool and chances are excellent that we will accumulate a full thousand hours or more by the middle of February. This should guarantee prompt blooming of peach trees with the arrival of warm days in early spring. If the normal expectancy holds good this year, we should see some trees begin to open a few blooms the last week in February, and the trees should be coming nicely into bloom by the 5th to the 10th of March. This expectancy will be changed if the weather does not warm up in March. Sometimes we have seen blooms on the Hiley trees over a period of six weeks on account of cool March temperatures which did not permit the rapid full development of bloom.

"There has been a certain amount of winterkilling of peach buds. We have made counts for the several varieties grown here, and the death rate of the buds is roughly from 10 to 25 percent. There has been quite a bit of killing recently, and as the weather has remained cold, the succulent bud tissues have not browned to an extent where it is easy to say with certainty in all cases whether or not the bud is killed."

He had written January 26th: "The weather at Fort Valley the past week has been cold. A light blanket of snow covered the ground on Wednesday morning, January 23. We have had no temperatures here which have alarmed peach growers in any way. The lowest figure for the past week was 19.5 degrees on January 23. There is an excellent set of buds, and growers are optimistic about crop prospects...."

J. B. Demaree, Albany, Ga.

Writing from the U. S. Pecan Disease Field Laboratory on February 2, he says: "A fight is being made against a small mite which has infested our stock cultures. This mite enters plate cultures and leaves a bacterial train wherever it wanders.

"It also penetrates the cotton plug of text tubes and likewise contaminates stock cultures that have been carried along for a number of years, many of which are considered quite valuable. All cultures were transferred this week in an attempt to save them. These mites were perhaps brought into the laboratory last summer on leaves or nuts collected for examination."

FRUIT DISEASES

Paul W. Miller, Corvallis, Oreg.

"The weather during the past week has been very stormy," he writes January 19th. "Up to six inches of snow has fallen at various points in the Willamette valley in Oregon. The snow was accompanied by the coldest weather we have experienced since December, 1932. In some spots in the valley the thermometer dropped to 19° above zero. A peculiar phase of this storm was the fact that a south wind prevailed during its height. According to Edward Wells, the U. S. Weather observer at Portland, Oreg., there is an almost unprecedented occurrence, since the storms from the south are in almost all cases accompanied by rain and relatively mild temperatures."

J. R. Cole, Shreveport, La.

Writing on January 26th, he says: "We have had real wintry weather here, in contrast to the week before. The official low here was 15° above. It was 10° at the station. All truck crops in this vicinity were either killed or severely injured."

ADMINISTRATIVE NOTES

Purchase of articles manufactured in Federal penitentiaries.--In a recent decision the Comptroller General ruled that it was necessary that articles manufactured by Federal penitentiaries be obtained from them unless it can be shown that the penitentiaries were unable to furnish such articles. The following is a list of articles manufactured by Federal penitentiaries: Deck mats, brushes (all kinds--including paint, varnish, and floor), canvas, cloth bags, burlap bags, brooms, tentage, all gray iron castings, bronze castings, and aluminum castings.

In accordance with this decision, all orders for the above mentioned articles must be submitted to the Washington Office, which will arrange to obtain them from the Bureau of Penitentiaries. An exception is made in the case of articles to be paid for from Public Works Administration funds, as such funds can not be spent for material made by covict labor.

Telegraphic Solicitation of Bids. Budget and Finance Circular No. 11, dated January 25, 1935, calls attention to the fact that telegraphic solicitation of bids shall not be made except in extreme emergencies. The Comptroller General has ruled that this method of obtaining bids does not comply with the Revised Statutes in regard to advertising the needs of the United States, etc.

In cases of extreme emergency, where it appears essential to solicit bids by telegraph, the matter should be referred to our Business Office for handling.

ADMINISTRATIVE NOTES

Ford Parts Procurement Division Circular Letter No. 78, dated January 22, 1935, authorizes the purchase of repair parts for Ford cars and truck by an exception to Executive Order No. 6646. This will now permit the purchase of Ford parts without the restrictions of N.R.A. codes.

Distributing Publications Some of our workers are following the ancient custom of sending requests for publications direct to the Office of Information. This is no longer permissible. B.P.I. Memo. 681 of November 7, 1932, called attention to the new regulations in this matter, requiring that orders be sent for approval through the Bureau's Office of Publications (Mr. Pickens), meaning that orders drawn in our Division should go to Mr. Gilbert for checking and forwarding. This procedure is necessary to insure that orders are prepared carefully and correctly so that they may be handled with a minimum amount of time and labor in the Office of Information.

Where less than eight publications are ordered, an envelope (publication size--about 7x10-1/2 inches) may be used, and the series and number of copies written, along with the initials of the employee ordering, on the inside of the flap. Neither order nor frank is needed.

Where more than eight publications are needed, orders for Farmers' Bulletins and Leaflets should be prepared on Department Form 75 (white); and for all other publications on Form 74 (blue). Publications should be listed in numerical order, according to series. Each order should bear the name of the Division, as should the addressed envelope or frank, and must be initialled by the employee ordering. The addressed frank should be pinned to the upper left-hand corner on the back of the order. The maximum number of copies of any publication ordered at one time is fixed at 50. Where an order calls for more than 25 copies, it should be accompanied by a statement indicating the purpose for which the bulletins are needed.

It is useless to request the sending out of discontinued series (B.P.I. Bulletins and Circulars, Department Bulletins and Circulars, etc.) as such publications are no longer available for free distribution except where copies may be on hand in the Division issuing the bulletin. Before ordering publications sent out, a check should be made to see if they are actually available for distribution--or have been superseded by a later publication, etc.

In the case of foreign addresses--and if doubtful whether an address is foreign or domestic, consult the Postal Guide--a separate order is made for each on Form 81 (original) and 81-a (duplicate),* and submitted in duplicate. Prepare the address on the special 4x6 franked label; do not merely type it on the envelope. The address should be carefully verified with the information on hand and if necessary with a U.S.Postal Guide, the decisions of the National Geographic Board, or a good atlas, and should be complete and accurate in every detail. All publications, regardless of series, may be listed on the same order, only the series and

*Old Forms 131 and 132

ADMINISTRATIVE NOTES

number being necessary, listed numerically. If publications are sent with the order for forwarding, they should be placed in the envelope and the 4x6 addressed frank pasted on securely. The order should bear the notation: "Publications herewith."

Purchases from Federal Employees. The question of accepting bids or making purchases from Federal employees keeps bobbing up, though it has been held repeatedly that the Government should not, where its needs can be otherwise supplied, contract with its officers or employees, for the reason that such contracts are against public policy and afford grounds for complaint as to favoritism, fraud, etc. In a recent case of this type, where a bidder was employed by the Government of the Virgin Islands at the time he submitted a bid for tractors, the Comptroller General advised that "no bids should be considered or contracts entered into with any employee of the Government of the Virgin Islands or of the United States--whether such employee be temporary or permanent--for delivery of supplies and materials."

SUDDEN DEATH OF REXFORD K. SWARTZ

February 1, two days after the above item was handed to me by Mr. Swartz, we were inexpressibly shocked to learn of his death from spinal meningitis. That was Friday. I had seen him on Tuesday and while he complained of being tired and went home later than afternoon, none of us considered the illness as serious, as he was a man of exceptionally robust physique.

He came to the Bureau back in 1912, as a stenographer with the sugar plant investigational work. He joined the staff of the old office of Cotton, Truck and Forage Crop Disease Investigations in 1915. From 1920 to 1922 he served as secretary to the Assistant Chief of Bureau, then coming back to Cotton, Truck and Forage Crop Disease Investigations as head clerk, a position which he held until that office was included in the consolidation resulting in the present Division of Fruit and Vegetable Crops and Diseases. His outstanding ability, coupled with his splendid background of experience, led to his selection as the head of our business office.

While conspicuous for his industry and office loyalty, after an association of nearly a quarter of a century with him in official work, I am inclined to believe that his outstanding characteristic was his willingness to go out of his way to help others. It was perfectly amazing to see the trouble he would take to answer even relatively trivial inquiries from far off field station workers, for example. He invariably made the worker's problem his own and never rested satisfied until a solution was found. It will be a long, long time before the recollection of his many friendly acts fades from the minds and hearts of our workers.

He leaves a wife and five children.

-----JAF

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., March 1, 1935 No. 5

Perversity? Once over on Snake River, when Andrew McWilliams' saddle horse had the botts, he sent a buckboard 10 miles for a scientific stranger who claimed to be a botanist. But the horse died. Andy, you see, expected rather too much from science. So do a lot of people. The worker with plants, especially, has a much more difficult job than the average person realizes. That's because of the resemblance between plants and humans.

Sir Jagardis Chandra Boss, of India, always insisted that plants had a pulse and heart beat very much like animals, and reacted to stimulation in a manner to indicate the possession of a nervous system. Too, J. R. Cole has told us that pecans suffer from pneumonia--though he spells it Gnomonia. It is only reasonable to expect, then, the perversity to be found in human beings. Growers down at Shreveport, La. who came to scoff remained to spray, for example, when J. R's spraying work in 1930 produced the first crop in 10 years--with the check tree falling a victim to the scab which destroyed the crops of previous years. The spraying was continued the two years following and there was less scab--even on the check tree! In 1933 and 1934, there was no scab, though 1933 was one of the wettest years in the Shreveport section's history. Is the action of this check tree evidence of the influence exerted by good companions--or merely perversity?

And consider the situation in Tulare County, Calif. The Naval orange crop, estimated at 4,500 carloads, turned out to be 11,000. Still the estimate was close--so far as the number of fruits produced was concerned--but the oranges ran about 126 to the box this year; 216 last. Valencia oranges and Marsh grapefruit in southern California, on the other hand, are smaller this season. So it goes. Lots of people kill themselves from sheer ennui--but not plant workers.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

G. B. Ramsey, Chicago, Ill.

"Last week I discovered something new, or at least very uncommon," he writes to Mr. Fisher under date of February 19th. "It is Peronospora parasitica in storage cabbage. I have photographed several specimens so that I can use the best for a colored plate in the new section of the handbook.

"The unusual seems to have been the rule, in fact, for the past two weeks. Severe spotting and decay of California cabbage by Mycosphaerella brassicicola has been found in a few cars, and Sporotrichum malorum inducing a brown, watery, core rot of Winesap apples are the two latest finds. Perhaps you and Dr. Brooks have observed this Sporotrichum rot frequently but I think it is rare with us here on the mid-west markets. Neither the description by Gardner nor Heald fit the type of decay that I have found here, although on account of the few specimens at hand I have no right to pass judgment on the types of decay produced by this organism. I haven't looked up Kidd's article on this."

SPRAY RESIDUES

In a notice to producers and consumers of apples and pears, the Secretary on January 24th announced a restriction in the quantity of lead residue permitted on these fruits in interstate commerce.

The tolerance permitted for 1935 crops will be 0.018 grain of lead to the pound of fruit. Sprays containing arsenic or fluorine will be under the same restriction as last year--0.01 grain of arsenic trioxide or 0.01 grain of fluorine to the pound of fruit.

Many consumers desiring to make assurance of safety doubly sure have sought advice as to the measures that may be taken in the home to cleanse fruits such as apples and pears. Commercial cleaning methods generally involve the use of dilute acid or alkali solutions to loosen or dissolve the residue, followed by rinsing in water. Such vigorous measures are unnecessary in the kitchen, where attention can be given to each individual fruit. The usual sanitary practice in the home of scrubbing with water is desirable under any circumstance.

Peeling the fruit, or perhaps better, removal of stem and blossom ends where the residue is most difficult to reach, is an added measure of safety which may be recommended.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. T. Pentzer, Fresno, Calif.

"Our exhibit of this season's experimental pack of grapes was held Friday at the cold storage plant and the turn-out was very gratifying," he writes February 11th. "Notices were sent to about 45 persons who we thought would be interested, most of them being grape shippers, and during the course of the day we had about 75 visitors, some coming from as far as Stockton, San Francisco, and Bakersfield.

"The cold storage company provided a large room and tables where we could exhibit the various packages to good advantage. The packages exhibited included check, fumigated, and packages receiving 5, 10 and 15 grams of Sodium Bisulphite. These treatments were shown in the sawdust lug holding about 22 pounds of grapes and 10 pounds of sawdust, the sawdust chest holding 34 pounds of grapes and about 12 pounds of sawdust, and the sawdust keg which holds a little more grapes and sawdust than the sawdust chest.

"In the display lug pack we exhibited untreated lugs, fumigated lugs, and packages in which we had placed Acid Sulphite in the pads.

"The thing that was evident to those who saw the exhibit was the greener color of the stems in the packages receiving Acid Sulphite. This difference was not apparent in the lots receiving 5 grams, but was very marked in the 10 gram lots; 15 grams of Sulphite produced injury in the form of bleaching of the capstem attachment. An occasional bleached berry was noticed in the 10 gram lots.

"Very favorable comment was made on the exhibit by the shippers and cold storage men attending. Since there has been so much mold in storage grapes this year, the interest in any method to obtain better mold control was very real. We plan to take a few packages to the cold storage meeting at Del Monte, showing the check and the sulphite treatments...."

FRUIT AND NUT PRODUCTION

C. F. Kinman, Sacramento, Calif.

Writing under date of February 1, he says: "We have had mild winter temperature this year. The soil at a depth of 1 to 2 feet in the Sacramento Valley has not gone much below the middle forties on the Fahrenheit scale and this has not been cold enough to stop root growth, at least on roots pruned during the fall....The performance of buds of some fruit trees indicates that the coming blooming season will be even earlier than the very early season of last year."

POTATO INVESTIGATIONS

Reduced from $1.10 to 60¢! Everybody knows that agricultural research is in itself the biggest bargain ever offered, but we have bargains in general lines, too. For example, Dr. William Stuart, who for 25 years has been in charge of our potato breeding and cultural investigations, tells the Press Service boys to break the news to potato growers that now is the time to buy certified seed. Such seed cost nearly twice as much last year as it does now. And, of course, the reduction in price means absolutely no lessening in quality!

Prices offered to growers for certified seed in the 22 States which certify now average about 60 cents a bushel. Last year a similar average (and by the same mathematicians!) was $1.10. Prices vary from 40 cents in Maine to about $1.15 in Nebraska, where the 1934 crop was approximately one-third that of 1933. Nebraska, in fact, is the only State where prices are higher this year.

Certified seed potatoes are virtually free from invisible virus diseases such as mosaic, leaf-roll and spindle tuber, and from such visible diseases as scab, black scurf, late blight and yellow dwarf. Certification comes only after official inspection by some State agency such as the board of agriculture, the agricultural college, or the State potato growers' association. Inspections are made in the field and after harvest, and vary slightly in different States.

"The use of good disease-free seed, is absolutely necessary for profitable potato production," says Doctor Stuart. "Farmers speak about varieties of potatoes 'running out', when they begin to decline in yield. Investigations have shown that 'running out' is due almost entirely to the presence of virus diseases which do not show up in the tuber itself. The best way to eliminate these diseases is to destroy all diseased, weak, or off-type plants."

The production of certified seed potatoes last year, incidentally, was next to the largest on record--10,313,495 bushels. Only the 1928 production topped that mark. Many farmers who produce certified seed potatoes obtain their seed from growers who specialize in foundation stock. This foundation stock is so free from disease and of such high quality that those who plant it have to do very little "roguing," or weeding out of sick plants, for at least two or three years.

Incidentally, Doctor Stuart told those at the recent Ohio Vegetable Growers Association meeting that potato growers should take steps to offset the prejudice against potatoes in the diet. He pointed out that no less an authority than the American Medical Association approves the potatoes and meat diet--exploding the notion that proteins and carbohydrates should not be eaten at the same meal. Furthermore, he said, the potato is no more fattening than wheat, rice, corn or other starchy foods--and even has an advantage over these because of its mineral content.

FRUIT AND NUT PRODUCTION

Elmer Snyder, Fresno, Calif.

"Several trips to commercial vineyards were made during the week to identify and study root-knot nematode infestations," he writes for the February 4-9 period. "Severe root-knot injury was found on 1-year, 2-year, 8-year and 18-year-old plantings of Sultanina (Thompson Seedless) vines. The 1-year and 2-year-old plantings were found so badly infested that the vines are to be pulled out.

The 8-year-old and 18-year-old plantings were decidedly weakened and have practically passed their commercial usefulness. While is was impossible to determine when these two bearing vineyards were infected with nematode infestations, the growth and commercial possibilities were destroyed long before the expected life of a normal vineyard had been reached. In all locations examined, the soil was sandy underlaid by a light sandy loam. This type of soil has been classified as the Fresno red sands, normally the texture was more or less the same to a depth of 6 feet. Leveling, cultivation, and irrigation has in places changed the normal depth and a slightly heavier loam occurs in some places within a foot or two of the surface. A 2-year-old planting of the rootstock Rupestris St. George was so badly infested that the vines will be pulled out this spring.

"In continuation of our studies of grape rootstocks in relation to their resistance to nematode infestation, a new test plot of 356 stock vines was planned for a very sandy location where the soil has been badly infested with nematode.

"Additional rains during the week brought the seasonal total to 12.36 inches, which is greater than any total rainfall for this section since 1905-1906."

He had written February 2d: "Some preliminary records were taken at pruning time to ascertain the correlation of the weights of grape prunings and linear growth of the vines.

"An average of 10 varieties gave a linear growth of 335 inches per pound of brush pruned from the vine. The correlation varies with varieties as indicated by a linear growth of 251 inches per pound of brush with Sultanina, while Panariti produced 562 inches of growth per pound. This would indicate that Panariti makes a much more slender growth than Sultanina, which is actually the case. The ratio of linear growth to brush weight gives a descriptive picture of the varietal growth habit."

DISEASES OF TRUCK CROPS
FRUIT AND NUT PRODUCTION

W. W. Aldrich, Medford, Oreg.

A study of 1933 and 1934 pruning data proved decidedly interesting. "These data seem to show that pruning was more critical for fruit set than soil moisture conditions during the spring," he comments.

"This does not mean that fruit set was not limited by insufficient soil moisture supply to the growing tissues, since other work indicates that the pear root systems cannot supply soil moisture as rapidly as it is lost by transpiration during the periods of high evaporating power of the air. The rate of shoot elongation was slightly influenced by soil moisture conditions during the spring, but here again severity of pruning was the dominant factor.

"A study of the amount of fruit enlargement in relation to the leaf area per fruit showed that in every case of heavy pruning, as compared with light pruning, the heavier pruning apparently increased the amount of fruit enlargement per unit of leaf area. Efforts to find the factors involved in this apparent increase in leaf efficiency for fruit growth were unsuccessful."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

"Considerable farm activity has been under way during this period," he writes for January. "Much of the land for all crops has been prepared and all farmers are now ready to begin potato planting. This crop, however, will probably be shorter than at any time during the past 20 years. In addition to the general difficulty of arranging suitable financial support, all farmers fear the present outlook for this crop and are cutting their acreage of their own accord.

"Spring cabbage will be about the normal acreage, and the other crops--such as beans, cucumbers, etc.--will probably be somewhat greater than was the case last year. We notice, however, that all farmers, regardless of their contemplated operations, are coming to us in greater numbers for help with their problems. We get more calls at present for help on disease problems than at any time since we started work in this region."

FRUIT DISEASES

John C. Dunegan writes from Fayetteville, Ark. on February 16th that the first routine examination of apple blotch cankers was made during the week and an appreciable number of the pycnidia examined were found to be full of spores. These examinations will be made weekly to gain data on the time of spore formation, the discharge of spores and the initiation of the primary infection on the fruit and leaves.

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"Reports received from the peach section in the vicinity of Nashville, Ark., indicate that the low temperatures in January killed a large portion of the peach buds," he writes February 9th. "The figures received to date indicate a mortality around 80 percent. Here in northwest Arkansas the mortality is practically 100 percent. I examined 1,009 buds from one orchard near Springdale and 1,005 were dead. These buds were on 49 limbs taken from all parts of one of the average orchards of the district. Twenty-five branches were collected from various parts of the orchard that had received the irrigation treatment during the drought last summer. There were 805 buds on these branches, but 803 were dead."

He had written February 2d: "A decided improvement in strawberry prices over the 1934 level is predicted for 1935 by J. H. Heckman, Extension economist in marketing, University College of Agriculture. However, he points out that the improvement will not be as great as it would have been if the drouth had been general in areas competing with Arkansas berries.

"The effect of the severe drouth on beds neglected because of the poor returns received in 1934 has resulted in a picking acreage for 1935 in Arkansas of 8,800 acres, which is only 40 percent as large as the acreage picked in 1934. This represents the smallest acreage since the State became a major strawberry producing area. Other States that compete with Arkansas in shipments will have about 72 percent of the 1934 acreage.

"Substantial plantings will have to be made in Arkansas, bringing the total acreage up to 16,000 to 18,000 acres if the State is to retain its place as a major strawberry producing area, and receive the maximum returns possible from the crop, says Mr. Heckman.

"Blakemore, a more recently introduced variety, has given good returns as well as showing greater drouth resistance than some of the other regular varieties, and Dorsett is another new variety that has given satisfactory results in limited plantings in this State, Mr. Heckman said."

It is easy to see that Mr. Heckman is going to be a very good friend of Darrow & Company, the strawberries (Blakemore and Dorsett) to which he refers so kindly, being, of course, two of our small fruit creations, developed by George M. Darrow and his associates, thus proving that it is sometimes very good policy to "let George do it." The prominent workers in our strawberry breeding work are, of course, George M. Darrow, George F. Waldo, and C. E. Schuster. But I suppose they call Schuster "George," too.

FRUIT DISEASES

U. S. Fruit Disease Field Laboratory, Springfield, Mo.

The report for the Ozark Fruit Disease Laboratory for the period from January 19th to February 16th, says: "During the past three weeks several trips have been made to peach orchards in the Mountain Grove, Springfield, Marionville and Cassville areas where peach buds were examined to note effect upon them of the low temperatures which prevailed in early January. In the peach variety orchard at the Missouri State Fruit Experiment Station at Mountain Grove, the following records were made:

Variety	Number of buds counted	Percent live buds
Red Bird	466	84
Alton	870	72
Champion	595	77
Early Elberta	762	20
Elberta	900	3
Late Elberta	620	31
J. H. Hale	812	4
Krummel	756	19
Wilma	487	16
Mikado	519	47
McGraw	700	79

In the Springfield, Marionville and Cassville areas the records were:

Springfield..	Elberta	397	2
	McGraw	800	51
Marionville..	Elberta	1,000	1.6
Cassville....	Elberta	1,986	1.5

FRUIT DISEASES

Leslie Pierce, Vincennes, Ind.

Writing from the Fruit Disease Laboratory concerning observations during the early part of the year, he says: "Peach fruit buds made much less advancement than was expected during the period of high temperature the first part of January, probably on account of the almost total absence of sunshine the first twenty days of the month.

"In spite of their retarded condition, a surprisingly high percentage of the peach buds were killed by the cold weather January 21-27. Elberta buds from our experimental orchard, examined January 28, showed a mortality of 28.3 percent. Elberta buds from the Dyer orchard showed a mortality of 37.3 percent. It is reported that 90 percent of the Elberta and Hale buds in the Dixie Orchard were killed by the freeze."

Lee M. Hutchins, Fort Valley, Ga.

"Continuous rains during the past week have completely prevented our getting into the nursery or orchard," he writes February 17th. "The accumulation of hours of cold at 45 degrees F. now reaches approximately 900. Hileys and Elbertas brought into the greenhouse come promptly into bloom, whereas Mayflowers are still lagging as they need a full thousand hours."

ADMINISTRATIVE NOTES

Retirement "The Civil Service Commission has advised this Department that it has been decided to handle certain retirement forms by distribution direct to the claimants by the Civil Service Commission rather than by furnishing a supply of the forms through the various departments," says Doctor Stockberger, director of personnel, in Personnel Circular No. 9, dated February 9, 1935. "The specific forms are:

2806-2 "Change of Beneficiary"
3007 "Claim of Beneficiary"
3006 "Application for Payment of Amount due Deceased Employee or Annitant" (Temporary form)

"A supply of the above forms will be made available in the Office of the District Manager of each Civil Service district as well as in the offices of the Commission's representatives outside of the Continental limits of the United States, or the forms may be obtained from the Civil Service Commission in Washington, D. C.

"Application for Payment of Accumulated Deductions, form 3-R 15, has been superseded by form 3006, supra, (temporary) and further use of said form 3-R 15 should be discontinued."

ADMINISTRATIVE NOTES

Get Your Orders in Now! For several years past we have called attention to the regulations which state that orders placed during the latter part of the fiscal year for the purpose of expending remaining funds cannot be accepted. Therefore again we urge you to check over your needs and contemplated purchases and send in as early as possible your orders for supplies and equipment.

If you wish, such orders could be sent in the form of separate lists--for example:

1. List of items which are needed at once and which should be secured as soon as practicable;

2. List of items which require the securing of bids. (Orders for such items could be held up for subsequent confirmation by you, if you wish--that is, the securing of bids simply make purchase possible but does not commit us definitely to the purchase if something comes up to prevent this, or to make it undesirable.)

Job Printing, Binding, etc. It has also been our experience that each year many orders for printing of field record books, card forms and the like, as well as requests for the binding of official books, etc., come in during the latter part of the fiscal year.

It quite often happens that these orders reach us after the Printing and Binding fund has been exhausted and so must of necessity be held until after July 1.

Please, therefore, check over your requirements in this respect for the next five or six months and send us immediately your orders for any printing or binding needed. These orders should reach us on or before March 10th.

Railroad Tickets In connection with the necessity of purchasing roundtrip tickets where more economical, etc. and the need for explaining why one-way tickets are used on occasions, one worker attached a note to explain the need for securing a refund on a portion of his ticket. "To make it plain," he writes, "I was coming on the going half, but not returning on the half returned, That is, I didn't go on the ticket--I came."

ADMINISTRATIVE NOTE

The Business Office. "You perhaps by this time have been informed of the untimely death of Mr. Swartz, which occurred so suddenly on the morning of February 1st," writes Mr. C. E. Schoenhals in a memorandum to members of the field staff, dated February 15, 1935. "We were just as shocked here as you were in the field to learn of his passing. He has been suffering with severe headaches, and on the Tuesday previous with acute earache which developed into mastoiditis and quickly into streptococcal spinal meningitis.

"Mr. Swartz was very highly regarded throughout the dividion, the bureau and the department for his sterling character and ability. He followed strictly the principle of a helpful attitude toward anyone raising a problem or inquiry regardless of its nature. While it is true we here have sustained a real loss and shall sorely miss his cheerful counsel, I am certain that 'the man in the field' will miss him more as a friend 'in Washington.'

"It obviously becomes necessary to appoint a successor and it affords me pleasure to announce the appointment of Mr. Leroy O. Gillette; a man who needs no introduction to our staff, since I am sure he has served you well on many occasions in his capacity as clerk in charge of procurement of supplies. He too has always been considerate of the needs of the field man. I know you will find in him a man who will follow in the policies of Mr. Swartz in being always kindly and considerate and as helpful as possible. May I assure you that you may feel equally as free in stating your problems to Mr. Gillette as you were with Mr. Swartz.

"I recall that on many occasions Mr. Swartz informed me of the splendid cooperation he received from the field staff. I bespeak this same fine cooperation for Mr. Gillette and I know you will accord it to him. It goes without saying you will have full cooperation from Mr. Gillette."

Goods of American Origin. It is noted that several of our field men are submitting Form 1034 vouchers to which are attached slips certifying to the American origin of the materials purchased. Our Business Office has a supply of 1034 vouchers with the certification stamped on them, and will be glad to send a supply to any employee needing them. It is suggested, too, that the unstamped vouchers on hand (that is, the 1034 vouchers without the certification stamped on them) be returned to our Business Office for stamping. We have also a supply of sub-vouchers, Form 1012-D, for distribution to those desiring them.

Vol. 7, No. 5 March 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., March 15, 1935 No. 6

Vegetable Standardization and Description Studies. For more than six years the Division has been cooperating with some 25 State Agricultural Experiment Stations located from coast to coast and from Canada to the Gulf, and with seedsmen and growers in the working out of descriptions of the important varieties of tomatoes, cabbage, peas, beets, carrots, spinach and onions. Work, too, has been started on turnips and rutabagas, with peppers next on the list. Studies have not been in progress simultaneously on all the crops, but with two or three at a time. An effort is being made to grow each crop in a number of widely separted important producing areas so that we can determine how much variation occurs in the appearance and behavior of the varieties as a result of the conditions under which they are grown.

These studies, which were planned and carried on the first three years by Dr. Victor R. Boswell, have increased greatly in extent and in intensiveness. For the past three years the work has been in more immediate charge of Dr. Roy Magruder who spends practically his full time on it, and who has effected numerous improvements and refinements during its development. The object, of course, is to find and adequately describe the existing type of each of the important commercial varieties of vegetables most nearly conforming to the generally accepted ideal for that particular variety. We want to set up standards to guide buyers and sellers. A fruit buyer in Boston can telegraph to the Valley of Virginia and order a carload of U. S. No. 1 Delicious apples in standard bushel baskets and know exactly what he will get if the product actually conforms to the specifications of that grade. We want to make it possible for handlers of vegetables to place orders with the same confidence.

VEGETABLE PRODUCTION, STANDARDIZATION AND IMPROVEMENT INVESTIGATIONS.

Especially do we expect to bring order out of the confusion now existing when vegetable growers make up their seed orders. A grower may admire the superiority of a neighbor's crop of tomatoes over his own and resolve that the following year he will grow the variety that his neighbor grew. He orders the variety by name but from a different seedsman. When his crop reaches maturity he finds that while the tomato is different from the sort he grew previously, it is also different from the tomato grown by his neighbor. When he complains, the seedsman insists that he sold him a very fine strain of the particular variety in question. This may be true, and the strain may be uniform and of good quality, but it is still not the tomato the grower wanted.

This situation exists because at present the seedsmen and growers do not agree upon exactly what characteristics a certain variety should possess. Standardization is the solution of the problem, and to bring that about all that is necessary is to get growers and seedsmen to adopt the descriptions or specifications of some authority whose recommendations they are willing to accept. We believe seedsmen are well on the way towards accepting this Division as the authority. After all, so far as establishing standards is concerned, it doesn't really matter so much whether the standard accepted for the tomato represents a fruit just a little larger or smaller or deeper than the one you had in mind. The important thing is to get the same picture before everyone who is interested in that variety so that they can all understand exactly what is referred to when the variety is mentioned. We expect to make this easily possible through the descriptions and illustrations in the series of publications being issued as a result of this cooperative work.

With the increasingly rigid requirements of the canning trade and fresh vegetable markets, and the growing discrimination of the consumer, it has become not only desirable but essential to have vegetable products quite uniform and true to type, as well as nationally recognized standards and descriptions of the varieties in the trade.

The standard we are selecting for each variety is based on the best obtainable cross-section of opinion of leading horticulturists, investigators, seedsmen and growers from all over the country. These standards are not based on impossibly perfect specimens, but on samples taken from the best stocks we can obtain. Thus we avoid setting the standard so high that it will be impossible of attainment, and yet place it high enough to represent a product of sterling quality, usually superior to the majority now offered for sale. Naturally, these standards and descriptions are flexible, to be revised from time to time as conditions require, or as new and superior types are developed. We hope ultimately to have every seed dealer use our publications as handbooks.

VEGETABLE PRODUCTION; STANDARDIZATION AND IMPROVEMENT INVESTIGATIONS.

There is no danger that the attempt to reduce the number of vegetable varieties and emphasize the important sorts will discourage efforts to produce new varieties and modifications. The pressure urging the production of improved sorts, and scientific enthusiasm in crop breeding and improvement will result in the introduction of more good new varieties the next few years than we have ever seen introduced in an equal time before. Varieties of superior merit will displace our present standard varieties regardless of what we say or don't say.

All we are seeking to do is to make sure that all engaged in the growing and handling of vegetables speak the same language. We are meeting encouraging cooperation because those concerned see how the program works to the advantage of each. The increased demand for the standardized sorts with the resulting falling off in orders for minor varieties will permit seedsmen to concentrate on a relatively few varieties, and their customers will inevitably receive greater value for their money, and growers will be able to supply a higher quality, more uniform product, and produce a crop with greater certainty of finding a profitable market. And the consumer--who is not really a legendary person but you--and you--and you--will receive more for his money. After all, this vegetable standardization and description project is merely a program to eliminate senseless waste and give every one in the whole sequence of trading and use a more desirable and worthwile product.

Standardization does not mean reducing things to a dead level of sameness and mediocrity. Any industry, commercial or agricultural, sufficiently interested to attempt to work out standards, is not going to establish such a low standard that the product will be less than representative of the best. Standardization simply means that the article is guaranteed, so to speak, to meet certain definite specifications. The purchaser knows what to expect. And the industry will not permit the article to fall much below the specifications for fear that it might get a bad reputation--resulting in commercial death. One of the strongest arguments in favor of standardization is that it almost inevitably works toward improvement in the product--when an industry begins to standardize, it will almost invariably tend to standardize at the highest practicable level of excellence.

It has been conservatively estimated that this vegetable standardization and description work will lead to the discarding of so many undesirable sorts, with a resulting concentration on the better sorts, that a saving of millions of dollars a year will be made by the vegetable industry. In fact, the savings represented by the work already done is put at $4,000,000 a year.

FRUIT AND NUT PRODUCTION

Atherton C. Gossard, Spring Hill, Ala

"The Gulf coast had its third hard freeze of the winter this week," he writes for the week ending March 2, "upsetting the ideas of some of the residents that we don't have more than two a year. On the morning of February 27 the temperature dropped to 24° at the Alabama Citrus Spray Laboratory at Spring Hill, and to 26° at the Mobile Weather Bureau. On the morning of February 28 the temperature dropped to 19° at Spring Hill, 25° in Mobile, and 17° at the Horticultural Development Company's orchards ten miles west of Spring Hill.

"Dr. L. L. English, entomologist at the Citrus Spray Laboratory, thinks there was more damage to plants on the first night than on the second because of water from previous rain, which froze on the foliage, and high wind on the former night, and drier, still air on the latter.

"Following partial and, in some cases, nearly complete defoliation and some wood injury of Satsuma orange trees by the two previous freezes of the winter, this third freeze may cause nearly complete defoliation and more serious wood injury of the Satsuma trees over considerable of this territory. Reports from growers indicate that cabbage planted since the January freeze came through this freeze fairly well.

"Mobile's famous "Azalea Trail" has had a hard time this year. The azaleas were beginning to blossom at the time of the January freeze. Open blossoms and large buds were frozen then, and the opening of others somewhat retarded. Many of the bushes were getting well into bloom this week and, in another week or ten days would have presented a wonderful sight. Needless to say, there are no azalea blossoms now, and it is doubtful if there are enough buds left on the earlier blooming varieties to make the usual gorgeous display this year."

H. L. Crane, Albany, Ga.

"The meeting of the Southeastern Pecan Growers Association was one of the best they have ever had," he reports under date of February 23d.

"It was disappointing, however, that so few growers attended. The meetings were well advertised, but at most there were only about 60 present. The first day's program was given over to production methods, and the laboratory staff here contributed most of the papers.

"Weather clear and cool. No rain at Philema during the week."

FRUIT AND NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"The pollination work on the filberts and pruning work on them has been completed this week," he writes for the week of February 11-16. "The blooming season of the filbert has ended earlier than usual."

Writing on February 9th, he said: "Thinning out in the pruning work on filberts has not given very satisfactory results. The number of blossoms that have developed and the wood growth connected with it has not been as much as desired. On the other hand, the trees that we pruned back heavily last spring have an unusually large amount of female flowers. In this connection it is interesting to note that of the new shoots developed, some are almost bare of flowers, while others were heavily loaded."

"We have been pruning and counting the bloom on the pruned and unpruned trees with the filbert," he wrote February 2d. "In the crowded orchards of the older trees pruning so far as thinning out is concerned has not given any appreciable results. Heading back would appear to give better results that are more in line of what is needed. That can only be told finally by our counting."

Milo N. Wood, Sacramento, Calif.

Writing concerning observations and work during the three weeks ending February 2, he says: "During this period emphasis was placed upon field work. Trees of the new almond creations 8-31 and 8-32 were distributed to growers for further trial. With the exception of the Banning district, some of these trees have been distributed to every almond growing district. An attempt has been made to test these new varieties under all the climatic conditions common to California, in different soils, under different systems of irrigation, and under various cultural methods. We should, therefore, be certain of the actual performance of the two new promising varieties before they are planted on a commercial scale.....

"An attempt has been made to complete the collection of data on almond yields with special attention given to variation in varieties, water supply, situations, soils, rootstocks, and cultural methods. Although this work has been handled as a side issue, definite information in regard to approximately 10,000 acres has been obtained in addition to that previously collected. In addition to general information, one chief value of this type of data lies in the light thrown upon the various factors which make for success or failure in almond production. ...Considerable rain has been falling over quite a long period this winter. Most of the soils which were suffering from a dry condition are now well saturated with moisture. This condition should make a great improvement this year over last in the quality and production of almonds in the non-irrigated districts."

FRUIT AND NUT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"The close proximity of Anjou trees on well-drained, free soil to Anjou trees on water-logged, adobe soil gave an excellent opportunity to observe the effect of soil moisture (and probably soil temperature) upon time of bud opening," he writes in his report on February 25th.

"Bud opening is well advanced in this orchard, and buds are just as far advanced on the trees in cold (?), poorly drained adobe soil as on trees in well-drained, free soil. This observation refutes the popular idea among growers that soil temperature affects time of bud opening."

Writing on February 18th, he reported, "The sales return was received for the 9 boxes of Bosc produced on the scattered, small trees at the station. Since the price for each size is based on the average returns for some 200 care of Bosc, these prices merit consideration. The larger sizes brought smaller returns than the smaller sizes. The extra fancy 150's netted the Station $.68 per packed box, whereas the 120's netted only $.37 per box.

"Since freight, commission and packing charges total about $2 per box, the auction price of the 150 size was about $2.68, and of the 120 size, $2.37. This 13.1 percent discount in auction price on the larger size is a decided difference in market price. However, on the basis of net return to the grower, the $.31 discount on the larger size becomes a 45 percent reduction in net return. Since production operation is at least $.50 per box, the net return of $37 per box for the larger size means an actual loss to the grower. Hence the production of sizes smaller than 120 is at present a major production problem."

He had written February 4th: "A 2.04 inch rainfall during January brought the total rainfall since September 1 up to 11.65 inches, which is just 1.42 inches above the 24-year average. Thus, with the soil well wetted to a considerable depth, and with about 36 inches of snow (equivalent to about 12 inches of water) in the hills, the prospects for the 1935 supply of soil moisture are promising."

J. L. Pelham, Shreveport, La.

"We started work on the pruning block," he writes in his report for the week ending February 2d. "Low temperatures caused more damage to cover crops than usual. The oats were almost a complete loss and the vetch was badly damaged. The damage possibly was due in part to the high temperatures the preceding week."

FRUIT AND NUT PRODUCTION

Elmer Snyder, Fresno, Calif.

"Many growers visiting the Fresno station during the past few months have been inquiring for information concerning the growing of Panariti (Black Corinthe), the 'Zante Currant of Commerce,' he writes February 23d.

"A considerable number of growers will plant the Panariti this spring. The interest in Panariti is brought about mainly by the price which has been paid during the past few years while other raisins were very low. The dried Panariti or currants have been sold by the grower for 6 and 7 cents per pound. While the average yield per acre would probably be less than a ton to the acre, some of the better cared for vineyards have been yielding 1-1/2 tons or more per acre. At 7 cents per pound a very satisfactory profit can be made.

"In 1916 there were only several small plots of Panariti of less than an acre in commercial production. Through the efforts of our ringing work and publications showing what production could be obtained with correct ringing procedure, the Panariti acreage has gradually increased so that at the present time there are approximately between 2,000 and 3,000 acres of this variety in bearing. Some are used locally as a fresh market grape, some are used in special wine making, but the major portion of the crop is used to produce the dried currants.

"It might be added that we still have to convince some of our visitors that the dried currant is manufactured from a grape (Vitis) and not from the English currant (Ribes)."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"March came in like the proverbial lamb following mild weather the latter part of February," he reports under date of March 2d "The first appreciable snow of the season started falling February 23. The Cheyenne Weather Bureau reported a fall of 6.4 inches, with precipitation of .47, but at the station the snowfall was less than three inches, with a few drifts in low places not over a foot in depth. The precipitation totalled a .26. All of the snow, except a few scattered patches where sheltered by shrubbery, had melted away by evening of February 28th.

"Breeding work on apples under way February 25; only a few of the trees are blooming this season. Contonued planting seed of ornamentals Seed of 114 varieties of trees and shrubs, and 167 herbaceous perennials and legumes were sent to cooperators. Preparing notes on fruits and perennials."

FRUIT DISEASES

Leslie Pierce, Vincennes, Ind.

"Further investigations show that the amount of bud-killing on Elberta peach was much greater than was indicated by examinations made a short time after the period of freezing weather January 21-28," he writes on February 22d. "The examination of a fairly large number of buds the second week in February also shows that the percentage of buds killed is considerably higher on the short fruit spurs than on the longer growth. Of a total of 418 buds on short fruit spurs from our experimental orchard at the Knox County Poor Farm, 310 or 74.1 percent had been killed by the January freeze. A total of 583 buds on long growth from the same orchard showed a mortality of 59.3 percent. Taken as a whole, the 1001 fruit buds from the two types of fruiting wood showed a mortality of 65.5 percent. The percentage of dead buds in this particular orchard as shown by an examination made late in January was 28.3 percent.

"The percentage of dead Elberta buds in the Dyer orchard has also increased considerably since the first counts were made late in January. On February 19, an examination of 300 buds from both long and short fruiting wood on low limbs from this orchard showed that 60.3 percent had been killed by the January freeze. On the same date, 300 buds from both types of growth on limbs from the tops of the trees showed a mortality of 55.3 percent. The average percentage of dead buds was 57.8 percent. The percentage of dead Elberta buds in the Dyer orchard as shown by an examination made the latter part of January was 37.3 percent.

"In making these detailed examinations to determine the amount of the damage caused by frost, it was noted that in both orchards the live buds were well distributed on the trees. This should result in a full crop of fruit, if no further damage to the buds occurs. As an aid to fruit-setting, on account of the apparent weakness of the fruiting wood and the fruit buds in our experimental orchard, nitrate will be applied to the trees three or four weeks before the blooming period."

Paul W. Miller, Corvallis, Oreg.

"During the week a conference with Mr. R. A. Bailey, Prune Code Administrator, was held in regard to the prune scab project," he writes February 16th. "Mr. Bailey called my attention to the great financial loss which prune scab occasioned during the season just past. The 'dockage' due to scab blemishes on the prunes ranged according to the locality from 10 to 100 percent of the crop. Around Roseburg, Oreg. on Petite prunes, scab was very bad, the average 'dockage' due to scab being 33 percent. It is planned to establish a field station somewhere in the Umpqua valley near Roseburg in order to study the disorder in this vicinity where it is apparently particularly severe."

FRUIT DISEASES

Lee M. Hutchins, Fort Valley, Ga.

Writing from the U. S. Peach Disease Field Laboratory on March 2, he says: "The past week has seen another case of the remarkable resistance of peach buds at Fort Valley against freezes. With the buds of most varieties swelling and with some of them in the pink, we have experienced no serious crop loss as a result of the low temperature which dropped to 17.9 degrees."

John C. Dunegan, Fayetteville, Ark.

"The isolation experiments with the brown rot cankers on Early Wheeler twigs, started on February 23, yielded cultures of Sclerotinia fructicola from two cankers," he reports March 2d. "To date I have cultured 28 cankers and have secured the brown rot fungus from three."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"Since returning from Washington my time has been occupied primarily in examining Delicious and Golden Delicious in our storage experiments," he writes February 24th.

"Excepting the immature fruit and the apples which were harvested after water-core had set in, the condition is very satisfactory. The flavor, however, has depreciated so that most lots may be classed from mild to neutral. Golden Delicious are giving their usual striking performance, particularly in the way they keep their quality after being placed at a temperature of 65°. Some of our lots which were delayed for 6-1/2 days at 65° constant temperature before storage and which were held at a constant temperature of 65° for 6 days after storage were still in very satisfactory condition for dessert purpose....

"The weather in Eastern Washington has been moderate, with many pleasant bright sunshiny days and with frosts at night. Up to the present time temperatures have not been high enough to cause alarm though if the present bright weather continues the season unquestionably will be advanced ahead of normal.

Some of the young peach trees in this district are now showing severe killing from the abrupt cold weather which came on December 25th following uninterrupted mild temperatures."

ONE YEAR PROBATION REQUIRED FOR ALL PROFESSIONAL EMPLOYEES.

"Effective March 1, 1935," writes Dr. W. W. Stockberger, director of personnel, in Personnel Circular No. 10, dated February 14th, "all probational employees appointed in all grades of the professional service of the Department of Agriculture will be required to serve a one year probationary period, instead of six months.

"This decision has been reached after a survey made by all the Bureaus of the Department of Agriculture. It was the concensus of opinion of a great majority of officials contacted that the period of probation should be changed from six months to one year for all professional employees and the Civil Service Commission, under date of February 9, 1935, approved this change."

CARELESSNESS IN WRAPPING FOR MAILING

In B. P. I. Memo. 819, dated February 18, 1935, Mr. H. E. Allenson, business manager of the bureau quotes a letter received from Mr. W. M. Mooney, Postmaster, Washington, D. C.:

> "This office is in receipt of a report from the Kansas City Missouri Terminal, relative to the receipt at that point, en route to destination, of a parcel post package mailed by your bureau, and addressed to Mr. Ralph R. Will, State College, New Mexico, in a damaged condition for the reason that it was not properly prepared for mailing.
>
> "The report indicates that the contents of the package were too heavy for the type of container used, in that only flimsy wrapping paper was used, with adhesive paper tape for reinforcement, which necessitated that the package be rewrapped before forwarding it to destination.
>
> "It is requested, therefore, that when packages containing heavy material are prepared for mailing, they be wrapped with sufficient strong wrapping paper, together with stout cord in order to prevent like damage being occasioned them in the ordinary course of handling in transit."

Mr. Allanson asks that we bring this matter to the attention of all employees of the Division who have occasion to prepare parcels for mailing.

ADMINISTRATIVE NOTES

Airplane Travel and Insurance. "With increasing use of the airplane as a method of travel," says B. P. I. Memo. 821, dated February 26, 1935, "it is suggested that individuals who have occasion to travel by airplane review the coverage of their life insurance and accident insurance policies to ascertain whether in case of accident their families are protected.

"I understand that most of the old line insurance companies now include airplane travel without extra charge except where an individual is engaged on an activity where airplanes are used extensively, or where an individual is a pilot. In such cases insurance companies, I understand, will issue an amendment to cover airplane travel at a small additional cost.

"This memorandum is intended merely to suggest the advisability of employees carefully checking over their policies to be sure their dependents are protected where they do have occasion to use airplanes."

Gasoline, etc. In any instance where it is found necessary to obtain bids for products covered by the Petroleum Code--such as gasoline, kerosene, paraffin, etc.--the matter should be taken up with the Business Office here in Washington, in order that we may be certain that the required clauses are made a part of the specifications.

NO FREE SEEDS--OR PLANTS.

"For twelve years the U. S. Department of Agriculture has been trying to convince 100,000,000 people that it has no free seeds or plants," says a notice sent out to papers by our Press Service. "Yet each year as spring approaches, thousands of requests pour in from farms, suburbs and penthouses. And they are met with disappointment.

"Years ago--previous to 1923--there was an annual appropriation for free seeds for Congressional distribution through the Department of Agriculture, but in 1923 the Government decided to discontinue the distribution of this great quantity of seed since it was only commercial garden seed such as could be bought from any good seed house, and did not necessarily represent varieties better than those in common use.

"Not only does the Department of Agriculture have no free seed, it has no seeds or plants for sale either."

Vol. 7, No. 6 March 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., April 1, 1935 No. 7

Quality--- and Quantity

Some weeks ago the NEWS LETTER mentioned that 228 of the 517 publications by Bureau of Plant Industry employees during the past fiscal year were prepared by members of the staff of this Division. We meant this, of course, as praise, not censure! Now, with Miscellaneous Publication No. 168, "Market Diseases of Fruits and Vegetables - Apples, Pears, Quinces," off the press we are forcibly reminded that the Division is strong on quality as well as quantity in its publications.

These market disease publications, along with the splendid series being issued in connection with the vegetable standardization and description studies, are setting a very high standard indeed. In fact, they have already acquired something of an international reputation for high quality. One of our Canadian friends tells us that they are the finest he has seen. Another congratulates us warmly on the entire series in writing to tell us how valuable they are in his official work. And the steady and continuous domestic demand indicates high approval.

Well, there's a reason. W. W. Gilbert and his editorial associates have put in an amazing amount of work on Miscellaneous Publication 168, for example, just to make certain that the color plates are as nearly perfect as possible. They have driven the engravers wild, but market inspectors and others using the publication will call down blessings upon them. Carefully prepared color illustrations add much to the cost of the bulletin, but they add a hundredfold more to its value in practical use. After all, a color plate is a good bit like an egg--and you know there is no such thing as a "pretty good" egg. Either it's good--or it isn't!

DISEASES OF ORNAMENTAL PLANTS

Frank P. McWhorter, Corvallis, Oreg.

"The signs of the season point to another outbreak of Iris leaf spot on bulbous iris," he writes. "Before the first of February reports from growers who has given Iris bulbs the double treatment (bichloride soak plus Ceresan dip) were hopeful, but the leaf spot is with us again it seems.

"Last year we proved to our own satisfaction that Heterosporium fungus was identical with the one on German iris and therefore from this source," he continues "This year the fungus appears different. Usually, according to published accounts and our own observations, the Didymellina stage is formed only on the old, fallen, weathered, decaying leaves of German iris which have been riddled by the conidial (Heterosporium) stage the previous spring. Now both are forming on the young green foliage of bulbous iris.

"For years the tips of the winter leaves of bulbous iris have been injured by cold. Why during 1934, and we fear 1935, should these injured leaf tips become centers of infection for Heterosporium? We observed none at the local bulb plot 1934, but we have plenty now 1935. True, we brought in stocks 'to get a start' of the disease for spray purposes, but now there is as much or more in our original as in the new lots. We don't know where it came from, but we have no evidence that it came from the new lots. Personally, I feel that we are dealing with a plastic fungus which has 'set' a strain adapted to bulbous iris. But we are welcoming these local depredations (with true phytopathological joy) for at last we have at hand plant material for testing out a spray program. This is being done.

"We have observed an interesting case of virus diseased callas in a Portland greenhouse. The disease which exhibits symptoms we would expect from Australian Spotted wilt in this plant, has a local history which shows that it has developed in the greenhouse during the past four years. They have propagated their own stock and propagated the disease with it."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

"Potato planting is now over," he writes the first of March, "and growers have every prospect of getting an excellent stand. Excess rain is the usual 'scare' of the average grower in this section and of course there has been little more to date than the minimum requirements. Seed treatment was much more general this season than ever before, consequently there should be very little loss suffered from Rhizoctonia. The planting of such crops as beans, cucumbers, and squash is now under way...."

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

"During the month of February there was an average daily excess of 4 degrees or 112 for the month," he writes March 9th. "Beginning March 1, every day was above the normal temperature to and including March 6. On the 6th the temperature dropped to 20° F. but in spite of this there was an excess of 70 degrees during the first 7 days of March. Growers have naturally become alarmed because of the growth which apple and peach buds have made during this period. One-half inch of rain fell February 24th, and 1-1/2 inches on March 4th. Orchard subsoils which last fall were practically depleted of moisture are now well saturated.

"During late February and early March, apple scab perithecia were found in abundance in many orchards in the Ozarks. At this time last year what few scab perithecia were found were only partially mature. The first mature ascospores were found in material collected February 26. From the observations to date, it appears that there will be ample scab inoculum in April."

Life at the Ozark Fruit Disease Laboratory is not always as serious as that, however, A recent visitor to the office was asked if he intended spraying his peaches in the dormant with lime sulphur or Bordeaux mixture. "I always use both--mixed together, "declared the visitor. "I feel that I get better results that way." M. A. recovered from the shock of the reply sufficiently to express the opinion that it was rather fortunate for the visitor that his trees were still dormant. "The big question," he comments in writing us of the affair, "is: What are the chemical reactions involved when liquid lime sulphur and Bordeaux are mixed and then sprayed out. Some task for the chemist, it seems to me!"

FRUIT PRODUCTION

A. D. Shamel, Riverside, Calif.

"Mr. F. D. Richey, Chief of the Bureau, Dr. E. C. Auchter, and Mr. Knowles Ryerson were in the Riverside district for two days last week," he writes March 18th, "and spent part of their visit here with us. . . . . There was little or no apparent damage from the low temperatures of the fore part of last week in the citrus orchards that were protected by heaters. In some others there are indications of injury to the tender young blossom growth but the extent of this damage will not be known for some time. . . . We have had a total of about 11 inches of rainfall during the present season and this is more than twice the amount for the same period last season. Navel orange picking has been greatly delayed by the frequent rains and the fruit is dropping rather heavily in those groves in which we are working."

FRUIT DISEASES

Lee M. Hutchins, Fort Valley, Ga.

"In South Carolina we performed a thorough series of experiments in which the principal features of the phony technique for dormant inoculation work were repeated in the case of the new peach disease there," he writes March 17th, from the U. S. Peach Disease Field Laboratory, discussing some field work in South Carolina.

"We planted a nursery with a total of 76 graft or inoculation lots and which included perhaps 2,000 piece-root grafts and inoculated trees. This is a situation which will bear close watching. Many of the characters of this disease indicate that it may be caused by a virus, and if so it is extremely dangerous as the spread is rapid.

"Driving back from South Carolina to Fort Valley, I stopped off at Cornelia and laid out the apply spray plots for this year's crop-removal sprays. Elbertas, Georgia Belles and J. H. Hales were in the extended pink stage of blooming, just ready to expand into full bloom. At Griffin, Ga., the Elbertas were in full bloom and continued in thisstage on to Fort Valley.

"Owing to continuous cool weather, with temperatures staying well below 70, the trees have bloomed fairly evenly and have remained in bloom for a long period. Open blooms have been seen on the trees of Hiley and Elberta in orchards about the laboratory for the past two weeks. The peak of open blooms was reached on about March 15, and on this date perhaps 5 to 15 percent of the blooms had shed the petals, 75 percent were in full bloom with anthers dehisced, and about 10 percent in the pink stage, buds not yet open. The blooms are exceptionally large and beautiful this year. There is a heavy set throughout central Georgia and crop prospects at the present time are excellent."

FRUIT PRODUCTION

Milo N. Wood, Sacramento, Calif.

"Recent light frosts were reported to have done a great deal of damage to the almond bloom in the Chico district," he writes March 16. "However, examination of some of the orchards shows that except in very low places the damage was probably not so severe as reported. Owing to the fact that the snow pack is very low in the foothills, the Chico district has expected frost. The Peerless variety was injured somewhat in many of the unheated orchards. Orchards artificially heated escaped with little or no frost so far as could be seen at the time they were examined."

He had written earlier: "The almond breeding work has been emphasized this year and enough crosses made to obtain nuts for planting all the land possibly available and still allow for a considerable mortality from natural drop, crow damage or other damage possible to almond orchards."

FRUIT PRODUCTION

Elmer Snyder, Fresno, Calif.

"Local nurserymen in the Napa Valley have sold practically all of their white wine varieties and are rapidly selling out their stock of Rupestris St. George rootings," he writes March 2d. "While no extensive plantings are being made this season, the acreage of white wine varieties is being increased to supply the demand for these. Semillon, the basis of most Sauterne wines, is the variety most in demand. One-year-old bench-grafted vines are selling for $100.00 per thousand, while rooted resistant stock vines are selling for $35.00 per thousand.

"A row of vines of Riparia Gloire had growth over two inches long at Oakville on February 26th. On the morning of February 27th, a light frost killed all of these shoots. Other buds and vines will start later. Riparia Gloire was the only variety which had started to grow--which is about a month earlier than other varieties will start at that station."

DAVID GRIFFITHS Dr. David Griffiths died at Emergency Hospital, Washington, D.C., Tuesday evening, March 19, 1935, after a brief illness. He had been engaged on his official work up to within a week of his death. He is survived by his widow, Mrs. Louise Hayward Griffiths, and a son and daughter.

Doctor Griffiths received his bachelor of science degree from the South Dakota College of Agriculture, which also awarded him his master's degree later. In 1900 he received the degree of doctor of philosophy from Columbia University. He came to the Department in 1901, but it was not until 1917 that he joined the horticultural activities and began the investigations which were to become such a vital part of his life--the work with flowering bulbs. Largely as a result of his efforts, the commercial culture of bulbs is now on a satisfactory basis in this country--a thing believed impossible when he started his project. Doctor Griffiths became such a recognized leader in his field that contributions from his pen were in constant demand, here and abroad.

Flowers are a form of beauty available to rich and poor alike. One does not need to own flowers to share in the pleasure their beauty gives. To have added so much of beauty to a world which so sorely needs it, is to have left a splendid memorial indeed. Too, thousands now derive their livelihood from the growing and handling of flowers and ornamentals. Doctor Griffiths' work has done much to point the way to a better and surer livelihood for this group.

NUT PRODUCTION

H. L. Crane, Albany, Ga.

"A visit was made to the Wauland Plantations, 12 miles north of Albany, where very severe winter injury was observed on three-year-old tung trees," he writes for the week ending March 9th.

"There was little or no injury to the wood, but 100 percent of all terminal buds examined were killed. Observations made at Philema on vigorous 4-year-old trees showed little or no damage from the winter cold. Pears were in bloom when our last low temperatures occurred and very severe damage to the blossoms resulted. Examination of the peach buds shows that although there has been a variable amount of injury, there are still left sufficient buds for a good crop of fruit."

Writing on March 2d he said: "On Thursday I visited the 500-acre pecan orchard of the late John D. Little. This orchard is 12 and 13 years old, located on good land, and has been well cared for in the past. About one-fourth of the acreage is of the Schley variety. In the past two years this variety has scabbed quite badly. In the spring of 1934, the variety set a very heavy crop of nuts, the trees were not sprayed to control scab, and as a result no nuts were harvested. The crop of Schley was a total loss.

"The manager of the orchard had great faith in pruning as a practice to overcome many difficulties in pecan growing. Therefore, when another grower told him that very severe pruning prevented his Schley trees from scabbing, he was in a state of mind to listen to the suggestion. He started a number of men in the Schley blocks cutting the trees. They were not pruned; they were butchered.

"In all my experience and dealing with fruit and nut growers, I have never before seen such a job of butchering trees. When I pointed out the scab lesions on the shoots left on the trees and told him that these were the source of his scab infections, he was greatly surprised and said he thought the only infection came from the leaves. What he can do now to save the trees is a problem. This is just another example of the truth of the old saying that 'A little knowledge is a dangerous thing.'".

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"The first harvesting of forcing rhubarb grown in the headhouse basement was made March 9th," he writes. "We have finished planting seed of tomato and onion in flats for variety tests. Harvesting of muskmelons and describing of varieties has been continued. Completed breeding work on apples and started on bush fruits."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

Writing on March 9th he says: "We continued with the work of placing recording thermometers in cars of Delicious apples shipped out of cold storage at Peshastin to the auction in New York City. Some of the cars carrying instruments encountered winter conditions instead of the anticipated spring-like weather. As low as -26° was reported at Williston, N. D. during this period.

"We were called upon for a discussion of winter transportation problems at the weekly luncheon of the Wenatchee Valley Traffic Association. More interest was manifest in the Department's studies with salt and ice in connection with summer shipments of precooled soft fruits than was shown in our work with winter shipments.

"One of the shippers handling green peas from coast districts brought up the problem of 'heating' in top-iced shipments of this commodity when not precooled. The problem of shipping green peas also was brought to our attention during our recent call on the fruit trade in Chicago, as dissatisfaction had been experienced in receipts from the Puget Sound district. The application of Dr. Brooks and Mr. Miller's method of using CO_2 gas during the initial stages of transit suggested itself as being one means of inhibiting respiration until the action of the ice could have its effect on the center of the lading. The Department may be called upon to make trials of this during the coming season.

"The apricot growers of this district have made a request for studies on the ripening of the Moorpark variety. It has been found that this variety, the principal one grown in the State of Washington, is unsuitable for canning purposes because of a lack of uniformity in the rate of ripening as received for canning.

"In addition to soft scald in Winesap apples, this season at least, one lot of this variety has been found wherein storage scald was rampant. Although well colored, the fruit had been picked in late September while still very immature. Scald also has been common in 1934 Delicious, picked before being fully mature, despite the fact that oiled wraps were used.

"The appearance of from 2 to 3 percent blue mold decay in otherwise sound, cold storage Winesap apples is creating interest in winter washing and packing just prior to shipment. This practice has been increasing in the Yakima district during recent years. The fact that various lots of Winesaps from cold storage showing from 5 to 25 percent

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith (continued)

blue mold decay have had to be repacked or unpacked and sold loose, with a dead loss of 35 cents per box for the initial packing, is adding a great deal of impetus to the intention of storing apples loose when harvested. The outlook for shipping more bulk or loose apples during 1935 and future seasons also forecasts the probability of a swing in this direction. We may expect a reappearance of the storage scald problem if the storing of loose fruit comes into vogue."

He had written March 2d: "One of the principal transportation problems during the spring and autumn surrounds the most economical transit protection to give apples shipped from cold storage with temperatures from 30° to 32° when transcontinental atmospheric temperatures are moderate. To give a car an initial icing costs approximately 5 cents per box, consequently growers and shippers desire to avoid this expense if temperatures may be kept low enough to avoid advanced ripening without ice. We are now inserting recording thermometers in cars of apples moving to New York to secure records of temperature changes in cars where ice is not used. Later we expect to secure records in cars with, and in others without ice moving east in the same train."

JAPAN WALNUTS

Writing from the U. S. Horticultural Field Station at Meridian, Miss., Geo. P. Hoffman reports: "It has been interesting to find a small commercial planting of the so-called 'small' Japan walnut (a variety of Juglans sieboldiana) in full and profitable bearing near Waynesboro, Miss. This nut cracks or opens easily at the suture, is well filled with a large 'meat', and is of good flavor--between the flavor of the English and Black walnut. Because of the said regular bearing, this variety is attracting attention."

ADMINISTRATIVE NOTES

Foreign Travel. If you do not wish to pay the costs of travel on ships out of your own pocket, by all means travel on vessels of the American Merchant Marine!

The Comptroller General has just made two decisions on such cases where Department employees traveled on vessels of foreign registry, and ruled that under the law such travel could not be paid from official funds. Every employee who has even a remote idea of making an official foreign trip should read these decisions. Copies of the rulings have been sent to all Section Leaders and to our principal field stations. If there are any members of the staff who find it impossible to consult these, copies will be mailed to them direct from the Business Office on request.

ADMINISTRATIVE NOTES

Photographic film packs, etc. On many of the supply vouchers passing through the Business Office it has been noted that members of the field staff are purchasing cut films, roll films, film packs, and developing paper from local dealers at prices considerably in excess of the amount paid for the same items delivered by contractors in Washington. In many instances savings could have been made of from 25 to 50 percent.

The Supply Section in Washington attempts to keep a fair supply of such items on hand for immediate shipment, and can mail under frank as many as four or five dozen at a time, thereby passing on the contract savings to the members of our staff in the field. With funds on many allotments running short, such savings are decidedly worthy of consideration.

Items carried in stock include:

Roll films.....almost all sizes.
Film packs.....all generally used sizes
Cut films.....size 5x7 and 8x10
- Commercial Ortho
- Panchromatic
- S. S. Panchromatic
- Portrait
- Portrait Panchromatic
- Commercial

Azo paper .. almost all numbers (in gross lots)

Occasionally stocks are low, but only a few days are required to replenish the stock and by attempting to foresee needs for a very short time in advance, field workers may obtain almost any item of this type in time for its contemplated use--and, as pointed out, often at a saving of from 25 to 50 percent.

Round-trip Tickets. "In the audit of reimbursement vouchers," says Mr. H. E. Allanson in a Memorandum for Heads of Divisions, dated February 11, 1935, "the General Accounting Office checks very closely on the purchase of one-way tickets to determine whether round-trip tickets were available. In a number of cases, we have been required to make collections from individuals where it was clear that a round-trip ticket should have been purchased. It is suggested that you call to the attention of members of your staff who have occasion to travel the desirability of determining carefully in advance of travel whether a round-trip ticket can be secured and utilized advantageously. Where a one-way ticket has been used, the reimbursement voucher should carry a careful statement showing why the purchase of a round-trip ticket was not practicable."

ADMINISTRATIVE NOTES

Injuries in Line of Duty — From time to time instructions and information have been sent to the various field stations giving the procedure to be followed in case of injuries received by employees while on official work. Too great an emphasis can not be placed on the request to follow these instructions implicitly.

May we suggest that the instructions and forms be kept together in an accessible file (or in the "first aid" cabinets) so that in case of accident the first thought of the employee or superintendent of the field station will be to render the necessary forms and then follow additional instructions as outlined.

By obeying the rules of the Employee's Compensation Commission the payments to doctors are expedited, compensations are more speedily available, and the worries of everyone handling such claims are reduced to a minimum.

If you do not have the instructions and blank forms referred to, you should apply to the Business Office for a set.

Automobiles. Notice to operators of automobiles and others concerning trucks-motor oil contracts: Consolidated contracts are being made by the Navy Department for lubricating oils for the fiscal year beginning July 1, 1935, for all Federal activities.

The contracts will cover the entire range of oils regularly used for lubrication, motor oils, etc., and all purchases after July 1 must be made on these contracts.

If it is found that the contracts do not cover a required grade of oil, such fact should be reported to the Business Office and details given.

Identification cards — Have you ever had any person or firm refuse to recognize and accept your identification card? If so, please write to Mr. Gillette explaining the circumstances.

-- and remember, supply orders should reach us promptly if they are to be placed on this year's funds. Late orders, having the appearance of attempts to use up balances on appropriations, are difficult to get approved after the middle of April.

SCIENTIFIC ENGLISH

In view of the difficulties encountered by authors and editors in connection with manuscripts for official publications, it is interesting to find the Journal of the American Medical Association quoting experts to the effect that there are scarcely 100 competent medical writers in our country--in fact, scarcely more than 10 or 12! The American Journal of Public Health agrees, adding that writers do not seem to recognize that readers are apt to be prejudiced for or against the contents of an article somewhat by the way in which the writer expresses himself. "Carelessness in expression certainly indicates some lack of an orderly mind and leads one to suspect the value of alleged scientific facts expressed in loose language," he says.

The comments of these journals were inspired by an essay by an English physician, Dr. Herbert R. Hurter, on "Language, Jargon, and Modern Medicine." The main features of jargon in writing he describes as "pompous display, the use of long words when short ones are available, circumlocution and verbosity." As an example of jargon he cites the sentence "He was subjected by the nurse to the administration of a hypodermic injection of morphine," which can be expressed in good English as "The nurse gave him morphine hypodermically."

And yet the medical profession is supposed to be better educated than most others! We wonder how the literary batting average of our Bureau's plant scientists compares with that of the medicos? Favorably, we believe. But not to the point of boasting!

From the standpoint of our editors, it is felt that regardless of whether or not a writer has the natural or acquired faculty of good expression, it is not too much to expect that he should at least see to the accuracy of his material, i.e., statements of fact, technical terminology in his own field, computations, citations, etc. Our Department editors often have occasion to point out invalid or erroneous names of genera, species, and horticultural varieties, incorrect citations, inaccurate calculations, lack of agreement between text and tables, poor arrangement of data, and other discrepancies and errors. Such matters seem to belong mostly in the sphere of the author.

There is a school of thought that holds that a research writer should be permitted to report his work in his own free way, without the doubtful benefit of editorial ministrations,--leaving him and his work to be appraised accordingly by his scientific fellows. As a matter of abstract (if sometimes brutal) justice there is much to be said for such a plan--if the whole responsibility rests upon the author. But in our governmental scheme of things the institution as well as the individual bears a definite responsibility and may also have a reputation at stake, and although the personal inclination of a writer may be to emulate the style of the trailing-arbutus or the rambler rose, the exigencies of Departmental administration and economy may call for training on a trellis of prescribed form--or even for drastic pruning.

DESIGNATION OF GEOGRAPHIC TERMS COVERING THE EXTENT OF TERRITORY OR AREA

In a memorandum dated March 8, 1935, Dr. M. C. Merrill, Chief of Publications, says:

"Since 1924 the Bureau of Plant Industry and the Department of Agriculture generally have attempted to use the designations "Region", "Area", "Section", "District", and "Locality" in the order named, to indicate geographic areas in descending extent. It has been recognized that these designations are not borne out by dictionary definitions, but we believe that the somewhat arbitrary usage followed in the Department has probably been justified from the standpoint of uniformity in the meaning imposed upon these terms. This usage has been approved by some of the national authorities on geography and also by some of the specialists in the Department.

"To make their usage even more serviceable and also easier to follow, it seems desirable to indicate somewhat more definitely just what these terms mean in the Department usage. This I am attempting to do herewith. It is of course understood that there may be some justified exceptions to this usage. For instance, in the soil survey work the term "area" has a different meaning, established by long usage, from that given here. The Forest Service also uses "region" in a specialized, administrative sense. Some other exceptions may occur to you.

"REGION. - The geographic divisions of groups of States as used by the Bureaus of Agricultural Economics and the Census, as North Atlantic, North Central, South Atlantic, South Central, Western, etc.; also the Mississippi Valley, Rocky Mountain, or Pacific coast regions; the Corn Belt; the Cotton Belt; the Great Plains.

"AREA. - Geographic or physical divisions of one or more States and of less extent than a region, as the Coastal Plain, the Mississippi Delta, the Texas Panhandle, the "Inland Empire", the spring wheat area.

"SECTION. - Parts of a State or States, as the Upper Peninsula of Michigan, the black prairie section of Texas, the Eastern Shore, the Shenandoah apple section.

"DISTRICT. - Part of a State, as the apple-growing district of western New York, the Adirondack district of New York, the Black Hills.

"LOCALITY. - A town or part of a county."

ADMINISTRATIVE NOTES

Distributing Publications

BPI Memo. 681, Nov. 7, 1932, directs that all orders for publications shall be sent through the Bureau's Publications Office. Orders drawn in our Division go to Mr. Gilbert's office for checking and forwarding to Mr. Pickens. This procedure was found necessary to make sure that orders are correctly prepared and can be handled with a minimum of time and labor in the distribution sections. The law (U.S.Code, Title 44, Sec. 95) provides that the work of addressing, wrapping, mailing and otherwise dispatching publications for public distribution shall be handled at the Government Printing Office. We have a working agreement with the Superintendent of Documents which authorizes us to mail publications direct with certain pertinent correspondence, but ordinarily they should be mailed from the Government Printing office--orders going through Mr. Gilbert's office.

Where less than 8 publiations are ordered, a suitable franked manila envelope is used, the series and number of copies being written on the inside flap and initialled by the person ordering. In such cases no addressed frank is needed. When 8 or more are ordered, use Form 75 (white) for Farmers' Bulletins and Leaflets, and Form 74(blue) for all other publications. Pin to the upper lefthand back of order an addressed ungummed frank. Envelopes, franks and orders must have the name of our Division written or stamped on them, and the orders and envelopes must bear the initials of the person ordering the publications. This is essential to enable us to return them to sender in case the publications are found to be unavailable. Check carefully to see that the publications are actually available. It is useless, for example, to order BPI Bulletins and Circulars and Department Circulars (old list) and Department Bulletins, as these are no longer available except where copies are on hand in the issuing bureau or office.

The maximum number of copies of a publication that may be sent to a Washington address is 50; more may be sent to field addresses. When more than 25 are ordered, however, a statement must be furnished explaining need. When the same publication is to be sent to a number of persons, use a single order, noting on it: "To___miscellaneous addresses; addressed franks attached." In the case of publications to be sent at the request of Congressmen, use the 5x8 Congressional order form. This is to permit the Office of Information to charge the publications to the quotas of the Congressmen ordering them sent out.

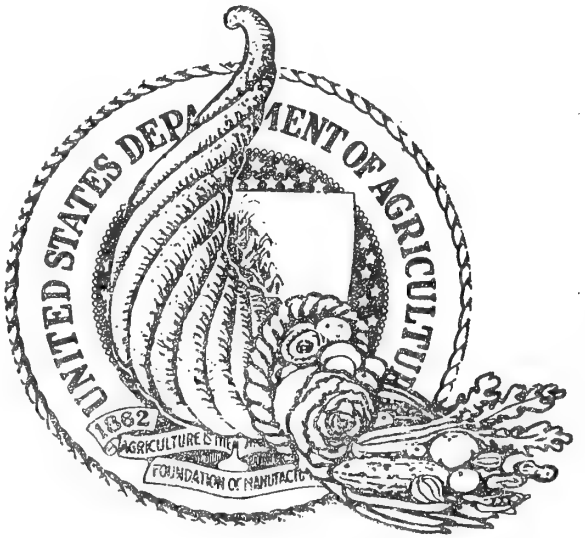
With foreign addresses, orders are prepared on Form 81 (original) and Form 81-a (duplicate* both copies being sent to our Business Office. The 4x6 "foreign" frank is used. If the publications can be supplied by the Office of Information they need not accompany the order; otherwise they must be sent with it and the order bear the notation "Herewith" below the list of publications to be sent.

Vol. 7, No. 7 April 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER



BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., April 15, 1935 No. 8

Market Diseases of Fruits and Vegetables. All those connected in any way with the shipping, handling, marketing or storing of fruits and vegetables should be interested in the series of publications being put out by the Division to aid in the recognition and identification of the diseases of fruits and vegetables. The latest is Miscellaneous Publication No. 168, "Market Diseases of Fruits and Vegetables: Apples, Pears, Quinces."

This represents an extended revision and elaboration, with the addition of numerous colored illustrations, of a preliminary (multigraphed) Handbook of Diseases of Fruits under Market, Storage, and Transit Conditions, prepared back in 1919 by Dean H. Rose and O. F. Burger for the use of the food-product inspectors of the Bureau of Agricultural Economics. Doctor Rose is the senior author of the present bulletin, his associate authors being Charles Brooks, D. F. Fisher and C. O. Bratley.

This series of publications constitute authoritative handbooks for Federal and State fruit and vegetable market inspectors and, as stated, are of interest to all connected in any way with the shipping, handling, marketing or storing of fruits and vegetables. The material is organized on the basis of the botanical families to which the plants belong, but no botanical system is followed in arranging these families. Practical considerations make it desirable to issue the material in separate sections arranged somewhat in the order of the economic importance of the crops.

The Host Index of the Fungi of North America, by A. B. Seymour, 1929, was used as the main guide to nomenclature of causal fungi and the names of authorities therefor, while the common names of insects used are those approved by the American Association of Economic Entomologists. So, you see, in text as well as in illustration, every effort has been made to reach 100 percent in accuracy.

In the earlier publications, MP 98 and MP 121, colored photographs (prepared through the collaboration of Webster Brothers of Chicago, Ill.) were used. They were prepared under the direction of George K. K. Link, Max W. Gardner, and Glen B. Ramsey, and Doctor Ramsey himself photographed and colored the originals for a number of the plates in Miscellaneous Publication 121, "Market Diseases of Fruits and Vegetables: Tomatoes, Peppers, Eggplants."

L. C. C. Krieger, R. C. Steadman, J. Marion Shull and Mary D. Arnold of our Division have done themselves proud in the preparation of the water-color paintings for the plates in Miscellaneous Publication 168, "Market Diseases of Fruits and Vegetables; Apples, Pears, Quinces," though the printed illustrations still fall somewhat below the original paintings.

While the colored plates add immeasurably to the usefulness of these publications, they add so much to the expense of printing that the Department has been able to secure only small editions for distribution. The free distribution has of necessity been limited to single copies to officials in State and Federal institutions who are in charge of lines of work directly related to the subjects covered in the publications, to libraries of such institutions, and to market inspectors, county agricultural agents, and commissioners of horticulture who have need for them in connection with their official duties. We have been compelled to refer all other applicants to the Superintendent of Documents, Government Printing Office, Washington, D. C., who has a supply available to meet the demand from the general public.

Miscellaneous Publication 98, "Market Diseases of Fruits and Vegetables: Potatoes," sells for 30 cents a copy.
MP 121, "Market Diseases of Fruits and Vegetables: Tomatoes, Peppers, Eggplants." 20 cents.
MP 168, "Market Diseases of Fruits and Vegetables: Apples, Pears, Quinces." 40 cents.

The Superintendent of Documents also has available at 5 cents each posters in the form of reprints in colors on 7-1/2 x 10 inch cardboard sheets (with appropriate labels) of the plates in these bulletins. Such posters displayed in conspicuous places at shipping and receiving points serve a very useful purpose by indicating clearly the different types of diseases and blemishes.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Harvesting Grapefruit

An Englishman had been very much impressed by the toast of a speaker who said: "My happiest hours have been passed in the arms of another man's wife--my mother." He was trying to repeat it to some of his friends and said: "Ah, there was h'an American who 'ad a toppin' wheeze. 'E said: My 'appiest 'ours 'ave been passed h'in the h'arms of h'another man's wife--(long pause)--My word, h'I cawn't for the life of me remember the lady's name!"

Your editor appears to have been in a somewhat similar predicament recently when he discussed the new method of harvesting grapefruit in Florida--and entirely forgot to mention the name of the man responsible for the discovery! The boys in the Press Service have done a whole lot better job with the item.

"A slight difference in the method of harvesting grapefruit--pulling the fruit from the stem instead of clipping it off--lessens loss from stem end rot," they say in a release of March 24th. "This discovery, simple in itself but far-reaching in its effect, has been made by J. R. Winston. . . . Stem end rot is one of the most serious decays affecting Florida and Texas grapefruit, developing after the fruit is harvested. It does not affect Arizona and California grapefruit.

"Grapefruit always has been cut from the tree with clippers. Apparently the stem end rot fungus gains easy entrance through the clipped stem. At any rate, when the fruit is pulled from the stem at time of picking a corky layer develops which decreases losses from stem end rot. Pulling is faster than clipping. Moreover, there is not the danger of the sharp 'stem buttons' cutting the peel of other grapefruit. Such cuts allow entry of blue mold and other organisms which cause decay. The great difficulty with stem end rot is that it develops in apparently sound fruit sometimes after picking--perhaps in the retail store or even in the consumer's kitchen."

Citrus crop Larger.

The Press Service also tells us that Jack Frost did his worst to cut down the citrus crops this year, but succeeded only in part, with the net result that the combined production of oranges and grapefruit is actually larger this year than last. "He reduced the Florida orange crop 25 percent, but visited California too late to do any appreciable damage to navel oranges and grapefruit there," says the item. "The Bureau of Agricultural Economics forecasts the California orange crop at 41,565,000 boxes compared with 28,430,000 boxes last year, and the Florida crop at 13,000,000 boxes compared with 18,100,000 boxes last year. The Florida grapefruit crop is forecast at 11,000,000 boxes compared with 10,700,000 boxes last year."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

A $250,000 Dividend! If I can slip this by Doctor Auchter, who is just back from the field, and who thinks I do a little (?) too much horn blowing in this great family paper, I want to tell you as man to man that the Division of Fruit and Vegetable Crops and Diseases just about stole the show at the meetings of the Pacific Northwest Advisory Board in Portland, Oreg. March 21 and 22.

If you have seen the program or have heard some details of the meetings, I think you are already convinced that the printed proceedings are going to bear evidence that our place in the fruit and transportation industries of the Pacific Northwest is not held merely by--er--ribbons of sentiment. It is tied definitely by cordage of more substantial character. (Ed Smith, please note!)

E. D. Mallison had a paper telling of our more economical method of shipping precooled pears. This was well received, but I am sure he will pardon me for hastening on to the paper which followed, for I am told by a man who thinks he heard clearly that Capt. Shelby Tuttle of Medford, Oreg. declared that following the investigations of the Department (outlined by Mr. Mallison in the paper mentioned) the Medford district alone had probably saved $250,000, and that no doubt many growers had been enabled to carry on during the recent years by reason of the savings to them through these economies.

Probably saved $250,000! That's no mere horn blowing--that is a rare musical performance!

Purely Pear-sonall While we are thinking of Medford, we want to congratulate the growers of the district on what impresses us as a fine speciment of "health viewpoint" advertising. The printed wrapper of a pear we have seen from the Medford district (and tasted with enthusiasm) reads:

> "These pears are valuable sources of water, fibre and minerals which are useful in combatting acidosis. The low amount of phosphorus and sulphur assists in this, along with the presence of calcium, sodium, potassium and other alkaline minerals. They also contain a very high proportion of copper, valuable in the prevention of anemia. They are also high in sugar, mostly of the levulose type, which is twice as sweet as cane sugar and yet can be eaten by diabetics."

If this doesn't serve to increase your consumption of pears, you have a much stronger mind than I have!

FRUIT PRODUCTION

A. D. Shamel, Riverside, Calif.

"The cool weather has retarded the orange bloom and in some instances under our observations the recent low temperatures have damaged the blossom growth in this section to some extent. We have received similar reports from other citrus districts and there has undoubtedly been considerable injury to the bloom in some of the unprotected orchards but the extent of this damage will not be known until later in the season.

"It now seems likely that the orange trees will not be in full bloom here much before the middle of April on account of the cool weather, which is the normal period of blooming for the orange in this region," he continues, writing under date of March 25th. "Earlier in the season it seemed certain that the trees would be in full bloom by the middle of March, as all indications pointed to an unusually early bloom. The dropping of the Naval oranges has been checked apparently to some extent during the cool weather in those orchards where we have made observations, and we are planning on studying this condition further so far as conditions permit."

DISEASES OF ORNAMENTAL PLANTS

Frank P. McWhorter, Corvallis, Oreg.

"The Heterosporium leaf spot of iris which we now find from southern Oregon to northern Washington is NOT the same as the one which devastated fields last year," he writes to Doctor Weiss on March 13th. "It is different and we hope of minor importance. Though the help of the Washington State Inspection Service and through a personal survey we have mapped the distribution of the two 'Hets' and are thankful to report that in no case has last year's disease recurred where the bulbs were dug and given the double (bichloride soak - ceresan dip) treatment. The situation is similar to the Big Fly versus the Little Fly in narcissus. The large spored 'Het' of last year is a specific Iris fungus; the new one seems to be saprophytic or chiefly saprophytic and probably of wide distribution....

"At the bulb plot we have been carrying on extensive tests on sprays and spreaders for Iris. We are disappointed that the leaf spot proved a false alarm but we are learning how to spray when we have to. Spreaders of the deturgent type seem very promising for Iris foliage.

"The 'new' Heterosporium (now proven to be a Didymellina) is a short cycle form. It has been producing perithecia since first noticed, and at the date of this writing is producing ascospores...."

NUT CULTURE

C. E. Schuster, Corvallis, Oreg.

"We made one trip to Grants Pass and intervening points, collecting soil samples to complete the field capacity work for the year," he writes on March 30th.

"In going over the various plots it was interesting to note that many of them, in spite of the heavy rains this winter, had only a relatively small amount of moisture stored as compared with what they ended with last season. This is typical with some of the hill soils with which we have been having considerable trouble. It is also surprising where we find sheet water or high water table and how that seems to be correlated with some so-called mysterious diseases that have been affecting the trees.

"We have had a good many complaints as to the amount of dead wood found in walnut trees. Some of the growers were of the opinion that it was correlated with the extremely dry season of last year. However, in checking over the irrigated and non-irrigated orchards we found no difference to speak of. Following this, Dr. Miller checked in his orchards where blight control had been carried on and found a marked difference between the sprayed and unsprayed trees."

Milo N. Wood, Sacramento, Calif.

"Field work on the almond breeding tract was continued," he writes for the week ending March 23d.

"The cold weather prolonged blooming dates of the almond hybrids in the breeding tract. From some of the crosses we have apparently secured some very late blooming trees. While the trees are young, and therefore bloom somewhat later than when older, it is apparent that a number have been produced which bloom later than the very latest of any of the commercial varieties.

"We are fortunate in securing these late bloomers because we will now have material to work with in making future crosses. It is hoped that eventually we can produce trees which will bloom after the late spring frosts are over and ripen the nuts before the fall rains begin. Such trees will be of value in practically all the almond districts in California."

NUT PRODUCTION

H. L. Crane, Albany, Ga.

"Pecan trees which have received good care during the past year are now starting into rapid growth." he writes for the week ending March 30th. "Trees which have had poor care are still almost dormant. On good, thrifty Moore trees pistillate bloom can now be seen, and it will be only a few days before they can be seen on similar Schley trees. In well cared for orchards the indications are now that there is going to be a very heavy catkin bloom. Since there is a relation between the amount of catkin bloom and pistillate bloom, we are expecting in such orchards a fair to good pistillate bloom.

"Since January 1st there has been a deficiency of approximately 4 inches in rainfall in the Albany territory. This is reflected in the slowness with which the trees on high land are starting growth this spring. It has been our observation, which is substantiated by reports of growers who have been thinning their orchards, that the stumps of trees growing on high land where the rain would run off or which was well drained do not 'bleed' and the wood seems to be dry, while the stumps of trees growing on the lower land in sinks, etc., 'bleed' profusely when the trees are cut."

Writing on March 23d, he said: "A block of approximately 450 pecan trees was selected and mapped for a study of the time when closely planted pecan orchards should be thinned. It is planned to also study methods of killing pecan trees so as to prevent the stumps from sprouting. There are thousands of acres of pecan orchards in this district which should be thinned now, and still others which should be thinned in a few years. It is hoped that this study will give information as to when it is most profitable for pecan growers to thin their orchards..."

U. S. Pecan Field Station, Shreveport, La.

"A record of catkin appearance indicates that the order is about as follows: Moore, Mobile, Pabst and Philema," writes J. L. Pelham on March 30th.

"Schley, Stuart, Success and Frotscher have not yet appeared. Catkins are well out on the Moore, having started early in the week."

B. G. Sitton adds the comment that in the older bearing orchards the order of appearance is Nelson, Centenial, Moore and Pabst. "Success and Stuart buds are just showing green. On April 2, careful examination of the unfolding bud showed a few terminals of Nelson with pistillate buds--probably be out enough to show by the last of the week."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"In the northwest Arkansas the fruit outlook is not optimistic according to County Agent O. L. McMurray," he writes March 23d. "It is too early yet to tell how much last year's drought will affect this year's apple crop, but the experienced growers hardly hope for a normal crop, he said. Strawberries this year are about 60 percent of last year's crop, according to present indications, and this is about 50 percent of the normal crop. The severe cold damaged peaches and about a 25 percent crop is the prospect, he said."

FRUIT AND NUT DISEASES

Paul W. Miller, Corvallis, Oreg.

Writing from the U. S. Fruit Disease Laboratory on March 23d, he says: "Attempts made during the week to isolate a parasitic micro-organism from 'scabby' spots on dried prunes were attended with negative results. Histological studies made of sections through typical 'scabby' spots on dried prunes showed the affected areas to be composed of dead cells, the walls of which were heavily suberized. No evidence of a fungus or bacterial organism could be detected in the tissues. Results of these preliminary studies would seem to support the view that this disorder is non-parasitic in nature.

"Results of studies on the relation of stage of filbert bud development to infection by the bacterial blight pathogene carried on in the greenhouse indicate that the tissues within the buds are susceptible to infection as soon as the scales have parted sufficiently to expose the green tips of the embryonic leaves within. However, as would be expected, a greater amount of infection occurred when the buds had opened and the leaves had unfolded.

"Results of studies on the relation of metoric water to the spread of filbert blight carried on under greenhouse conditions indicate that atmospheric moisture is an important agency in disseminating the primary incoulum. In studies relating to this subject, blighted filbert twigs collected from an infected filbert planting near Corvallis, Oreg. were suspended above a potted filbert tree in the moist chamber and a fine stream of water was sprayed on these twigs at intervals thereafter. The drip from these infected twigs fell upon the leaves of the tree below and after a suitable incubation period lesions developed in the tissues of the leaves which were in line with the drip."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"Usually the dust storms which have been reported the past few weeks have been carried on N-W-NW winds over the eastern States," he writes March 23d, "but on the 19th dense clouds of dust, whipped up by strong gales in northern Colorado and western Kansas, descended on Cheyenne and vicinity, blocking traffic and leaving a film of dust over the entire area. Old timers pronounce it the worst ever experienced in this locality, extending east from Sherman Hill, the high point on the Lincoln Highway about 40 miles west of the station, to Big Springs, Nebr. Longmont and Fort Collins, 50 miles south, reported no storm. The Cheyenne Weather Bureau reports a light sprinkle of rain that evening, but only a few drops pattered down on the station.

"One block of the raspberry variety test was moved further east, to get it on land that can be irrigated more satisfactorily. Dryland orchard plantings will be made in the vacated block. The newly moved raspberries were tank watered. Continued pollination with berries and grapes in the fruit-breeding experiments. Fruit trees are being sorted and labeled in readiness for planting on the station and for sending the cooperators. The first lot of strawberry plants, some 200, were received the forepart of the week and put in earth bands, to be planted out when weather permits. Spring shipments of nursery stock are arriving daily. Another harvest of rhubard was made on the 18th; spotting off tomato plants.

"A planting of hackberry was made in the spacing experiments in the southeast corner of the station. One thousand Austrian pine in gallon cans were set in the nursery, to be used for cooperative plantings next year. Additional plantings of red cedar, Austrian pine, cottonwood and ash were made on the hills back of the station buildings, the deciduous trees being taken from the variety orchard north of the staff houses. A truckload of potted evergreens was distributed to shelterbelt cooperators in the vicinity of Loveland, Colo. on the 21st and on the 22d J. D. Kelso left with another truckload for distribution in the vicinity of Lusk, Wyo.

"The west irrigation ditch has been bladed out and water turned in on the 21st and 22d for irrigating the newly set trees on the west hills, using the pump and fire hose to carry the water up from the ditch. Some field work was done with team and tractor-drawn cultivators."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

Reporting for the month of March, Doctor Moore writes: "The period of dry weather that has been visiting this section for the past four years during the spring months came somewhat early this season as compared to those of the past.

"The month of February apparently started the period with a very low rainfall and a mean temperature slightly below normal. The precipitation record was continued throughout the month of March and the mean temperature jumped to six degrees above normal. As we enter the month of April, we find everything badly in need of water although not showing any material damage as yet. With a deficiency of rainfall since January 1st of about four inches, this entire section is facing serious losses unless water conditions change within the near future.

"All crops in this section have shown remarkable progress during the past three weeks regardless of the general lack of rain. Most growers made all plantings early enough to insure fair stands before the soil moisture was depleted near the surface. Beans, cucumbers, and squash are in excellent shape at this time, while the potato crop is somewhat advanced in growth for this period of the year. Spring cabbage is being marketed at this time in limited quantities and on the best market that I have seen in several years. Due to the prolonged cold weather during January and February, there is a rather high percentage of cabbage plants going to seed, however, this will not materially cut the yield for the whole area if we get sufficient rain to fully mature the good plants now in the field.

"Both the disease and insect problems have been unusually light to date. We find some damage from Rhizoctonia in untreated potato fields but a very light amount of damp-off on such crops as beans and cucumbers. Some of our bean varieties are showing a few mosais plants at this time but no damage has been noted from root rot. The very light disease infection on all crops may be attributed entirely to the general lack of rain and to the rather high temperatures that we have had during the past few weeks."

Oldest Farm in United States? The New York Times is wondering if it has located the oldest farm in the country. A 7-acre farm near Ysleta, Texas, it reports, has been operated continuously since 1540. It is believed to be the oldest such farm in the United States. Until a few years ago it contained several pecan trees whose age was put at 200 years. The farm is owned and operated by the Franciscan Fathers, missionaries of the Roman Catholic Church.

ADMINISTRATIVE NOTES

Cash Payments Under Letters of Authorization. "There has been a marked tendency throughout the field to make more payments in cash under Letters of Authorization since advances of funds have been made by the Department," says B.P.I.Memo. 826, dated March 18, 1935. "It is important that cash payments be held to an absolute minimum, particularly in the vicinity of field stations or at points where we are conducting work. Whenever it is possible to do so, vouchers should be secured and submitted to the Washington Office for payment by check. This applies particularly to all purchases and to the employment of labor. Whenever it is possible to do so, labor should be appointed and payments made by check from Washington.

"Please see that this matter is brought to the attention of all of your men in the field who have occasion to make expenditures. As their vouchers are submitted, please see that they are carefully reviewed from this standpoint, and explanations required wherever the circumstances justifying cash payments are not obvious. A rigid policy of payment by voucher should be enforced, with cash payments made only where payment by voucher is clearly impracticable."

KEEP AN ACCOUNT OF YOUR ACTUAL TRAVEL EXPENSES

B. P. I. Memo. No. 828 informs us that regulations issued by the Treasury Department covering income tax includes the following item:

> "If an individual receives a salary and also an allowance for meals and lodging, as an example, per diem allowance in lieu of subsistence, the amount of the allowance would be included in the gross income, and the cost of such meals and lodging will be deducted therefrom."

The Bureau will be required to report in January, 1936, the total amount which has been paid to its employees, which will consist of total salary for the calendar year 1935 plus any amounts which have been paid as per diem allowance in lieu of subsistence.

Dr. Richey, Chief of Bureau, comments as follows:

> "From the above you will note that it will be necessary for each person who travels under a per diem to keep an accurate record of his actual expenses in order that he may deduct his expenses from the amount of subsistence received when making out his income tax return. It should be noted that this information will be required from January 1 to Decem-

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., May 1, 1935 No. 9

Dust Storm at Fayetteville. Writing from the Fayetteville, Ark. laboratory on April 13th, John C. Dunegan reports that on Wednesday night, April 10, a real dust storm suddenly descended upon Fayetteville. "We have had slight dust storms during the past month," he writes, "but the air was filled with dust Wednesday night--one could smell it and almost taste it! The next morning the entire town was covered with a readily visible thin film which penetrated everywhere and caused dismay to those housewives who had completed their spring house cleaning campaign.

"The dust storm left a visible deposit on the apple blossoms, giving the trees a very peculiar appearance. The effect of this layer of dust on pollination is an interesting problem. The environmental conditions continue to be extremely favorable for the discharge of apple scab perithecia. More than 200 ascospores were observed on one slide on April 8.

"Aeciospores of the rust fungus on "Anemone caroliniana, placed on peach and wild cherry leaves on March 29, have produced numerous infections and mature uredinia on the wild cherry leaves, but no signs of infection on the peach leaves. This is in accord with my theories of host relations in the group, and further experiments are in progress.

"Due to the extremely favorable conditions for the development of apple scab and the slow growth rate of the apple trees under the influence of the cold weather, an extra spray application was made during the week for scab control. The spraying was started on April 10, but was not finished until the afternoon of April 12, due to unfavorable weather conditions intervening."

FRUIT DISEASES

John C. Dunegan (continued)

He had written April 6th: "The week has been marked by frequent rain storms and cloudy weather, a continuation of the conditions which prevailed for the past two weeks.

"The environmental conditions have been extremely favorable to the development of peach leaf curl. Dr. V. H. Young of the Plant Pathology Department told me that he saw only one orchard between Fayetteville and Little Rock which did not appear to be seriously affected by the disease. He was traveling by automobile and while he did not stop at any of the orchards, the impression he gained was that leaf curl was extremely prevalent.

"The scattered peach orchards throughout northwest Arkansas appear to have a portion of a peach crop. In an earlier report I stated that buds taken from a number of orchards indicated that the peach crop had been destroyed by low temperatures. This is true for the orchards examined, and is also true for all the vigorously growing trees, but the weaker orchards and the less active trees have a portion of a crop."

M. A. Smith, Springfield, Mo.

"The month of March was the warmest March on record in the Missouri Ozarks," he writes from the Ozark Fruit Disease Laboratory on April 6th. "The average daily excess as compared with the normal was 7.6 degrees. Precipitation for the month was 9.09 inches--an excess of 5.70 inches as compared with the normal.

"As previously reported, fruit buds were expanding rapidly by the end of the first week of March. Warm weather continued for the remainder of the month and peach and pear trees were in full bloom by the 20th. Early apples were showing pink on the 23d. On the 28th a freeze occurred but no damage to fruit resulted. On the 31st the temperature dropped to 34 degrees. The temperature for the first six days of April averaged 43 for the minimum.

"The danger from a freeze is not yet over but the possibilities are much greater that the fruit may escape serious frost damage. If this happens, it will be the first time on record here that trees have bloomed in March and have escaped later frost damage.

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FRUIT DISEASES

Leslie Pierce, Vincennes, Ind.

Reporting on activities for the period from February 21 to April 17th, he writes: "The temperatures recorded for February were considerably higher than normal, the mean for the month being 5.8 degrees above the normal mean. The lowest temperature during the month, 13°, was recorded the morning of the 27th. The total precipitation in February was .35 inch, a departure from normal of -2.64 inches. The mean temperature for March was 7.7 degrees above the normal for the month. The lowest temperature during the month was 27 degrees, occurring the night of the 13th. A maximum temperature of 81 degrees was recorded on the 23rd. The total precipitation in March was 5.71 inches, a departure from normal of plus 1.13 inches.

"As a result of the high temperatures in March, the Wilma variety of peach was in full bloom on the 26th. Hiley and Early Elberta were in full bloom the 28th and Elberta and Salberta on the 30th. Belle of Georgia bloomed April 3 and Hale and South Haven 10th. Hale normally comes into full bloom 3 days after full bloom of Elberta, and South Haven is normally 2 days later than Hale.

"The pre-pink application to control scab on apple in our experimental orchard was made April 4, at which time the Grimes and Delicious in the plots were showing nearly 50 percent of the blossom clusters beginning to separate. The pink or cluster-bud application was made April 10. On this date about 5 percent of the blossoms on Grimes were open.

"Severe injury has been noted in several orchards as a result of spraying with lime-sulphur to control apple scab within a week after a dormant application of oil sprays. The damage appears to be most severe on Duchess although a number of varieties show some damage. An application of lime-sulphur made 6 days after the trees had been sprayed with oil killed about 50 percent of the blossom clusters in a block of Duchess trees in the Reed & Son orchard.

"A moderately severe outbreak of Phytophthora blight occurred in several of the peony plantings in this section following a four-day rainy period, April 5-8. The greatest amount of damage was on Felix Crousse, Karl Rosenfield and Edulus Superba. The last named variety has heretofore been considered as being practically immune to the disease. One grower reports that from 25 to 40 percent of the stalks of the susceptible varieties in his plantings have been killed by the disease. Severe damage from Phytophthora blight in the large peony fields at Evansville has also been reported.

FRUIT DISEASES

Leslie Pierce (continued)

"Dust from western storms covered this section for two 3-day periods during March. On March 5, the air was so filled with dust that the sun was obscured for the greater portion of the day, and a heavy coating of yellow dust was deposited on automobile tops, porches, etc. On April 11, dust was so thick over this section that visibility was reduced to about one-fourth mile.

"A cold wave swept over this section the afternoon and night of April 15. By 1:30 a. m. the morning of April 16, the temperature had dropped to 28 degrees in several of the orchards in the section. The lowest temperature reported for the morning of April 16, was 24° , recorded by a thermometer in a low section of the Reed & Son orchard. A low of 26° was reached in one of the Dyer orchards. The minimum temperature recorded at the Laboratory was 29° F. Professor Burkholder writes me that the temperature fell to 26° in the experimental orchard at Lafayette, Ind.

"Examinations made since the freeze indicate that the peach crop in this section was not seriously damaged. Hiley in the Dyer orchard showed a mortality of 76 percent. On account of the heavy set of fruit on this variety this loss amounts to only a moderate thinning. The mortality on Elberta at a moderately low elevation was 62 percent. No check on the damage to Hale in the Dyer orchard was made. Elberta from average elevation in our experimental orchard showed a mortality of 40 percent, while Hale from the same portion of the orchard showed that only 18 percent had been killed by the freeze. The most severe injury to the peach crop is reported from the Decker section, 12 miles south of Vincennes. According to these early reports from that section the crop has been greatly reduced by frost damage. Apples in several orchards were badly damaged but a check of the percentage of the blossoms killed has not been completed."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"Another dust storm, surpassing in intensity and duration the one of March 19, settled over this general area April 8 and 9, brought in on light southeast winds," he writes April 13.

"Fortunately the wind swung to the NW about 1 p. m. on the 9th, bringing with it a wet snowfall that dispelled the dust haze. The driving snow made traffic hazardous in the area the 9th, but practically all traces had melted by evening of the 12th, altho a few patches of snow remain in the shelterbelt at this writing."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The week ending April 6 has been spent largely in (1) prune scab studies, and (2) in studies of the control of filbert blight. During the forepart of the week prune thrips were caged on opening prune buds with the idea of definitely determining the causal relationship of prune thrips to 'scab'. It is planned to cage these insects on the buds and fruits in various stages of development in an effort to reproduce the disorder.

"During the latter part of the week a treatment of bordeaux mixture was applied to three test plots of filbert trees located at various points in the Willamette valley in Oregon. This is a third of a series of applications in which an effort is being made to determine (1) if spraying with bordeaux mixture will reduce tree losses from this disease, and (2) to determine the time and number of applications needed to control filbert blight satisfactorily."

He had written March 30: "In greenhouse studies on the relation of moisture to infection of filbert leaves by the filbert blight pathogene, it was found that four hours of continuous wetting at an average temperature of 15° C. was sufficient to cause a limited amount of infection on the leaves. However, a greater amount of infection accompanied prolongations of the moisture period to the limits reached in these studies.

"Field studies of the factor or factors associated with a drying back of walnut twigs of 1934 growth were also carried on during the week. In a statistical study made in a walnut planting near Aumsville, Oregon, it was found that plots sprayed with bordeaux mixture last season contained only about one-half as many dead twigs of 1934 growth as trees in the untreated plots. It would appear from these preliminary studies that spraying with bordeaux mixture is definitely helpful in preventing a considerable amount of dieback which is thought to be due to infection by the bacterial blight disease, caused by Ps. juglandis (Pierce)."

On April 13, he writes that the French prunes (Petite (Agen) variety) "are in full bloom in the Umpqua valley, Oregon, and the Italian prunes are in the late white tip stage of development. In the Willamette valley, Italian prunes are in the late green tip and early white tip stage of development. Early bloom is about a month later this year than last season when trees blossomed at an unprecedented early date. All other tree fruits are correspondingly later in their period this season."

NUT PRODUCTION

Milo N. Wood, Sacramento, Calif.

"The field work during the week has been confined to the Santa Clara Valley and Contra Costa County," he writes for the week ending April 6. "Observation shows that the frost damage to the almond crop in the Contra Costa County district has been very heavy and growers are much disappointed.

"The season was very favorable to a heavy yield of almonds in the district until the last frosts injured the bloom. Some of the varieties will have a light crop where the pistils were not in a stage to be affected by the frosts. It seems probable that this district will have one of the lightest crops in its history. Ordinarily, this district has been quite free from frost and no provisions have been made for orchard heating."

He had written March 30: "Work upon the almond breeding plots at Davis, especially with reference to blooming of the almond, has been continued. Blooming data and general data in relation to the effects of frost were also taken in the Salinas valley. In that particular district the frost has done a great deal of damage.

"Only the orchards which were artificially heated will have crops in paying quantities. Even in some of the heated orchards the blossoms were somewhat injured. Reports are coming in that the last frost in parts of the Sacramento and San Joaquin valleys did considerable damage. It appears that many of the orchards which escaped first frosts were in the right period of bloom to be damaged by the later frosts."

C. E. Schuster, Corvallis, Oreg.

Writing on April 6 he says: "The week of April 1-6 has seen the continuation of the routine work in wilting point with the soils.

"The termination of the field capacity work, which could not have been done last year, shows that with many soils there is very little storage capacity fro the orchards. In addition to that, a comparison of the moisture left in the soils last fall and the field capacity this spring would indicate a still smaller available moisture supply. Many of the orchards showed considerable distress even when the moisture supply was well above the wilting point last fall. Whatever inhibiting influence there is preventing the use of that moisture available above the wilting point must be determined in order to solve the problems of many of our orchards."

NUT PRODUCTION

H. L. Crane, Albany, Ga.

Writing from the U. S. Pecan Field Station and Laboratory on April 13th, he reports: "The weather during the week has been quite cool for this time of year. In fact, we have had to have some heat almost every day, which is very unusual at this time of year. This cool weather has greatly retarded the development of pecan trees. Pollen on Moore was being shed in large quantities, however. Schley pistillate flowers are showing in great abundance at this time on trees that have been well cared for. Again this year, all orchards that have been well taken care of during the past year are fully one to two weeks ahead of poorly cared for orchards in the initiation of growth, blossoming, etc.

"The indications are now that in the Albany territory there is going to be one of the heaviest pecan blooms that we have experienced in several years.

"Persimmon blossoms on the Japanese and native trees were bagged for material to be used in attempts to hybridize the two species."

A week earlier, April 6th, he wrote: "A block of pecan trees in the McCord-Simpson orchards, consisting of the varieties Schley, Moore, and Moneymaker, was selected for a study of the effects of girdling filler trees. In this work we plan to girdle the trees at different times and with varying degrees of severity, to see what effect it will have on nut production this year and next year. Last year pecan trees girdled just after blossoming produced a higher percentage of large nuts than similar ungirdled trees."

J. R. Cole, Albany, Ga.

"The condition of growth on the different pecans was as follows," he writes April 13th: "Schley, foliage far advanced, some leaves almost grown, pistillate flowers apparently in receptive stage; Delmas and Alley, leaves from 1/4 to 1/2 grown, catkins well out, while pistillate flowers just showing; Stuart, leaf buds bursting, no leaves over 1/4 grown, catkins just showing, with no sign of pistillate flowers."

J. L. Pelham, Shreveport, La.

"May beetles are doing serious damage to the pecan trees over most of the place," he writes April 6th. "They are much worse this year than at any time since the trees were planted. Usually the damage is confined to a few rows bordering the highway. They came out before the buds started, and have been very numerous."

FRUIT PRODUCTION

Elmer Snyder, Fresno, Calif.

"Between rains of the past two weeks, we were able to plant our grape nursery," he writes on April 13th. "These additional rains have brought the seasonal total to date to 17.34 inches, an all-time record for this station and a greater amount of rainfall than ever recorded before for any one season by our Fresno Weather Bureau station.

"Growth starting in general with vines has been later this season than the average. Within the past few warm days growth has been more apparent, and considerable numbers of green leaves are now showing on most of the vinifera varieties. The Alexandria muscat, one of the latest to start growth, is still mostly in the bud swelling stage."

He has writeen April 6th: "The grape nursery was planted at the Fresno station during the week. Over 20,000 resistant stock cuttings were planted, including various spacing, varietal and cut-location tests. Additional plantings were made of experimental material of machine-grafted, hand-grafted, and budded vines. Stock rootings were also planted in nursery row in order to have material available for later budding and summer grafting studies. With the decided renewed interest in resistant stock plantings commercially, a portion of our activities has been directed toward the determination of the best and most practical method for the reestablishment of vineyards on resistant stock roots.

"The latest data on grape acreages in California," he wrote March 28th, "give the following figures: Total acreage, 528,093 acres, consisting of 248,459 acres of raisin grape varieties, 98,408 acres of table grape varieties, and 181,226 acres of wine grape varieties. While the raisin grape varieties make up nearly half the acreage, the whole production does not go into raisin manufacture. The Sultanina (Thompson Seedless) while listed as a raisin grape variety is also one of the most important table grapes. The Alexandria (Muscat) while primarily used for raisin manufacture, is also in general demand for sweet wine manufacture. Approximately 2,000,000 tons of grapes are produced on this acreage.

"Heavier seasonal rainfall and subnormal temperatures in February and part of March contributed to the later starting of buds. Some frost occurred, killing the primary buds but it was not of sufficient severity to cause crop injury. An inspection trip totalling nearly 1,000 miles was made in March covering the various vineyard sections of the Upper San Joaquin valley, the Livermore valley, Napa valley, Sonoma valley and the Lodi section."

FRUIT PRODUCTION

"Dearing has reported the ripening of strawberries at Willard, N. C. during the first week in April," writes George M. Darrow," which is 2 to 3 weeks early. The height of the season is expected there the week after Easter, and a much heavier crop than last year is expected in North Carolina. Selections, all under the double-hill row system, will produce a heavy crop--2 to 3 times that of last year. There are 3-1/2 acres of selections and seedlings to fruit. In the cultural tests the double-hill rows and spaced rows look particularly fine in comparison with the matted row. The new style 24 crate from Kentucky will be extensively tested in North Carolina in comparison with the old 32-quart crate. A new insulated truck for hauling precooled berries to market is also to be used this year. I expect to be at Willard from about April 10 to May 15.

"At Beltsville, Md., though strawberry plants have been dug, it has not been possible to replant and heavy rains will delay the work several days again. A very fine germination of crosses of the trailing raspberry Rubus parvifolius x red, black, and purple varieties as well as of other raspberry crosses has been obtained.

C. P. Harley, Wenatchee, Wash.

"According to the latest indications, the blossoming period will be about normal this year," he writes under date of March 28th. "For a while it looked as though we would have another early season, although not as early as last year. A few warm days last week shoved the buds along rapidly but the cool weather since has slowed them up considerably. We estimate that full bloom will probably occur between the 2d and 5th of May. The Blossom Festival date has been set for the 4th.

"The North Central Washington Spray Committee, consisting of representatives from the Wenatchee Valley Traffic Association, Washington State College Extension Service, Wenatchee Production Credit Association, State Department of Agriculture and Washington State Agricultural Experiment Station, has just issued recommendations for spray schedules for 1935. An attempt is being made to have growers adopt the uniform program as nearly as possible throughout the district, with the idea in mind both to control codling moth and other pests in the most efficient manner possible, and to facilitate residue removal.

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W. W. Aldrich writes from Medford, Oreg. that the experimental Anjou fruit withdrawn from cold storage on March 15, required at least 7 days to ripen. "Mr. A. L. Ryall came down from Yakima to work with Prof. F. C. Reimer in rating this fruit for scale, flavor and breakdown. They observed that fruit from Frequent Early, which showed the most breakdown in 1934, is not showing any greater amount in 1935."

FRUIT PRODUCTION

A. D. Shamel, Riverside, Calif.

"The Washington Navel orange harvest season is drawing to a close," he writes April 15th. "With the present favorable weather conditions the picking will be largely completed about May 1."

He had written earlier that while on a visit to the Pomona district early in the month he had an opportunity to see the interesting small planting of the Bearss Seedless lime trees on the D. S. Unruh ranch. "The nursery trees were obtained from George C. Roeding at Fresno, Calif., in 1913," he wrote, "and were planted at his suggestion. They are on trifoliata rootstocks and have been more profitable than comparable Washington Navel and Valencia orange and Eureka lemon trees in this orchard, according to Mr. Unruh. A considerable number of buds have been cut from selected trees for propagation by nurserymen during recent years we were told. The planting is located on a mesa which has particularly good air drainage and this favorable location has apparently prevented damage to the trees and fruits from low temperatures, as orchard heaters have not been used."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

Writing on April 15th, he states that they have been examining their Anjou pears to observe the effects of various copper and oiled wraps on the spread of gray mold and the development of Anjou scald.

"Although scald was not apparent when the pears were withdrawn from cold storage," he says, "it developed in all packages after they had been kept in a warm room for several days. Anjou pears at Medford also have shown a marked tendency to develop scald during the current storage season--to the extent that commercial oiled wraps did not prevent it. Also this has been a 'scald' season for apples.

"Many shippers find it difficult to distinguish between soft scald, storage scald, and scald due to causes such as bad washing practices. "Generally speaking, storage scald has occurred on Delicious (picked before fully mature), and soft scald has developed in winesaps (held in common storage for several weeks, then stored at 30-32°). In Yakima where fruit has been stored loose, storage scald is now developing on both Delicious and Winesaps, especially after they pass through warm washing solutions.

"Since April 3d and 4th, seasonably warm weather has prevailed. Apricots are now in bloom and apple buds are showing green. Growers have been busy applying dormant or delayed dormant sprays. During the late winter and early spring very light falls of snow or rain have been had in Eastern Washington. The snowfall in the mountains was heavy enough for irrigation purposes....and this moisture has been conserved to a remarkable degree, making the supply more than ample."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

G. B. Ramsey, Chicago, Ill. (Market Pathology Notes)

"Yellow Newton apples from the northwest have recently shown on inspection a rather high percentage of Bulls-eye rot (Gloeosporium perennans) in advanced stages," he writes April 19. "One car inspected at Chicago for an export certificate showed 3 to 5 percent decay. Several lesions about the stem and calyx ends were 1½ inches in diameter and the decay penetrated to a depth of 1 inch... A heavy infection of Ohio Rome Beauty apples characterized by numerous small, sunken, brown spots about the lenticels proved to be due to Alternaria and Cladosporium. Individually and collectively these two fungi caused considerable loss in one or two lots of apples that came to our attention in January.

"During the past month certain lots of Florida celery have been badly blemished by 'Cracked stem'. Although bacterial soft rot does not occur in this cracked tissue as often as might be expected, the ill appearance of the bunches greatly reduce their market value... Mosaic and Early blight have also been prevalent in Florida celery lately... California peas are showing an unusual amount of mottling and distortion of the pods as a result of mosaic infection. Well advanced stages of pod spot (Asochyta) have also been noted in several shipments.

"Up until the present time very little decay has been found upon avocados on the market, but recently one lot was found showing serious decay by Rhizopus. An Alternaria and Colletotrichum were also responsible for some decay. While most boxes showed none, some boxes showed from 5 to 35 percent decay. This stock was all of the Fuerte variety from California.

"In addition to showing considerable storm injury or wind whipping Texas spinach has been affected somewhat by downy mildew (Peronospora). From the marketing standpoint, some of this spinach was of interest because of the presence of the oospore stage of Peronospora. This stage was evidenced by small cream-colored mats of mycelium on and within the epidermal tissues on the under sides of the leaves. The oospore and conidial stages never seemed to be associated in the same lesion. The upper epidermis was only slightly discolored above the mycelial mat bearing the oospores, whereas the large distinctly yellowish blotches were noted on the top surface of the leaves directly above the lesions induced by the conidial stage...

"Three samples of peas received from the Crystal Springs (Miss.) area have shown severe infection by Bacterium pisi and Peronospora viciae. The characteristic yellowish blotches and cloudy spots in the pod walls gave evidence of the presence of the oospore stage of Peronospora, but as usual the conidial stage was not present on the pods."

ADMINISTRATIVE NOTES

Iran--not Persia. The Persian Government has requested all foreign governments to use "Iran" and "Iranian" instead of "Persia" and "Persian," in all communications with the Persian Legation and with the Persian Government, beginning with the Persian New Year--March 22, 1935. Persians call their country Iran, and refer to themselves as Irani. Iran is derived from the ancient "Aryana", signifying the country of the Aryans. The use of "Persia" in most European languages is based upon the terminology of the ancient Greek historians.

The Secretary directs that beginning March 22, 1935, all members of the Department govern themselves accordingly when preparing communications to representatives of the Persian Government. Of course, such communications, for diplomatic reasons, will still be transmitted through the Secretary of State as in the past; meaning that they go to Doctor Auchter for transmittal, through the Chief of Bureau, to the Secretary's Office.

Passenger-Carrying Automobiles, etc. In passing upon a question by a Federal department which had found a type of station wagon or bus that was more suitable than the 1-ton truck formerly used in certain work, the Comptroller General pointed out that pursuant to the act of June 16, 1914 (38 Stat. 508), prohibiting the purchase of passenger-carrying vehicles under appropriations not specifically providing therefore, the question whether a vehicle is "passenger-carrying" must be determined from the character of the vehicle as shown by its construction and design, and not from the intended use. Since the particular car desired is described by the manufacturer as a passenger car or bus, baggage and equipment carrier, camp car and delivery wagon, the Comptroller held that it could not be purchased from an appropriation which does not specifically authorize the purchase of passenger-carrying vehicles.

Classification Field Service Grade and Class Ruling that one of the Federal bureaus could not legally appoint workers at salaries higher than the minimum rate of the grade to which they were to be appointed, Comptroller General McCarl stated that as the entire salary range prescribed by the Classification Act, as amended, for a particular grade, rather than one or any number of salary rates less than the total prescribed for the grade, attaches to any position either field or departmental, placed or allocated in said grade, regardless of the class of position, there is no authority for administrative action prescribing a salary range for a certain class of position in the field service beginning at a higher rate than the minimum salary rate of the range prescribed by the Classification Act, as amended, for the entire grade in which such position is properly placed or allocated.

ADMINISTRATIVE NOTES

Double Employment

In B. P. I Memo. 836, dated April 18, 1935, Mr. Richey writes: "A number of cases have come to my attention where individuals employed on various relief activities have also been employed for a portion of their time under letter of authorization by this Bureau.

"From an administrative standpoint, passing over the question of whether or not such employment might be legal, I consider it highly undesirable. Will you kindly see that members of your staff who have occasion to employ workers do not employ members who are simultaneously receiving pay from relief agencies?

"It is the purpose of the relief agencies, as I understand it, to assist individuals who cannot secure other employment and at the same time encourage securing other employment. To be employed by this Bureau, an individual should sever all connections which bring him an income from relief activities."

So far as we know, this double-employment condition is not encountered in the Division, but it will be well for all those in charge of activities where unskilled laborers and others are employed, to make sure that no one is employed who simultaneously receives pay from any relief agency.

Salary Checks

Did you get your salary check when you thought you should? Remember to send in your notices promptly for the pay period involved, including all necessary information, for after the notices are received the pay rolls must be prepared, approved, and forwarded through the accounting offices of the Bureau for payment from the Disbursing Office, which is now in the Treasury Department.

In the case of per diem employees, pay roll usually being made up in the field, you should of course give days worked, being careful to indicate specifically if work was performed on Sundays or holidays.

After allowing sufficient time for the above action (time required from receipt of notice to mailing of check, about 5 to 6 days), if you do not receive the check, write a letter reporting the fact, in order that the check may be traced through our own Department.

If indications are that the check has been mailed and should have been received, additional action will be taken, which requires a signed letter from the individual in whose favor the check is drawn, stating pertinent circumstances and that the check has not been received. A tracer is then started by the Disbursing Office and if it shows that the check has been lost, a duplicate check is issued.

ADMINISTRATIVE NOTES

Employment of Relatives. Bureau of Plant Industry Memorandum No. 830, dated April 9, 1935, quotes in full a memorandum from Dr. W. W. Stockberger, Director of Personnel, dated April 2, 1935, in regard to the employment of more than one member of a family in the Department's service.

"My memorandum of March 9, directing that hereafter no appointments to any position in any branch of the Department of Agriculture shall be made where one member of the family is already in the Federal service," writes Doctor Stockberger, "is hereby amended by removing the restriction on any such appointment where a person is selected from a Civil Service certificate either for temporary or permanent appointment.

"In the case of Civil Service appointments, it will be necessary, of course, to comply with Section 213 of the Economy Act (marital clause) and Section 9 of the Civil Service Act which reads as follows:

> 'That whenever there are already two or more members of a family in the public service in the grades covered by this act, no other member of such family shall be eligible to appointment to any of said grades.'

"In emergencies, such as fighting forest fires, or in isolated locations where it is impossible to comply with the original order, authorization to employ more than one member of the family is hereby granted.

"The purpose of the order of March 9 was to spread employment and the spirit, as well as the intent of such order, should be observed wherever it is possible to do so without affecting the necessary work of the Department."

In commenting on the above, Mr. H. E. Allanson, who signs B. P. I. Memo. 830 as Business Manager of the Bureau, says:

"The above is self-explanatory. Where the circumstances seem to warrant an exception, full information should be submitted as part of the recommendation for appointment. Our records should clearly justify any exceptions that may be made."

ADMINISTRATIVE NOTES

Discounts Occasionally we are asked to approve for payment vouchers covering supplies shipped to us on Government bills of lading where the articles have not actually been received but merely shipped, the idea being to take advantage of discounts offered for prompt payment. We cannot approve such vouchers, of course, as we must certify on Form 1034 vouchers, for example, that the articles have been "received in good condition," inspected and accepted, etc. The Comptroller General in a decision dated March 22, 1935 (A-60543) has emphasized the fact that payment must not be made for supplies until they have been inspected and accepted as conforming to the terms of the contract. He adds that the discount period does not begin until actual receipt of the shipment.

This again emphasizes the necessity for sending in promptly vouchers and notices of receipt covering material on all orders that carry a cash discount for prompt payment.

Send Vouchers to Section Leader. In this connection, remember that vouchers and other papers requiring the approval and initials of your project leader should be sent to him for transmittal to the Business Office. If sent first to the Business Office we must forward them to the section leader for approval and since a number of our section leaders are now located at the U. S. Horticultural Field Station, Beltsville, Md., this causes delay.

All vouchers and other papers requiring the project leader's approval should be sent to him. Remember this and you will get much quicker service on vouchers, letters of authorization, and the like.

Political Activity. B. P. I. Memo. 831, dated April 15, 1935, quotes in full a memorandum of March 21, 1935 from Dr. W. W. Stockberger, Director of Personnel: "It is the policy of the Department that all non-Civil Service workers should fully observe the restrictions on partisan political activity which apply to employees with Civil Service status.

"Competitive employees, while retaining the right to vote and to express privately their opinions on political subjects, are forbidden to take an active part in political management or in political campaigns. This also applies to temporary employees, employees on leave of absence with or without pay, substitutes, and labroers. Political activity in city, county, state or national elections, whether primary or regular, or in behalf of any party or candidate, or any measure to be voted upon, is prohibited."

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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The Division of Fruit and Vegetable Crops and Diseases

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

This NEWS LETTER is for distribution to employees of the Division only, and the material contained in it is of an informal and confidential nature, and is not to be published without securing the prior approval of the Division of Fruit and Vegetable Crops and Diseases. The reports of field workers and others represent, of course, their personal opinions, and so are not necessarily the official and final word on the subject.

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Lockers in Cold-Storage Plants.

"An interesting and important development in the application of freezing to food preservation in some of the Western States is to be noted in the rising popularity of individual lockers in cold storage plants," writes J. A. Berry from Seattle, Wash. "These lockers, of about 15 cubic feet capacity, are rented at $10 or less per month. Temperatures are maintained at, usually, a little above zero Fahrenheit.

"Customers are using the lockers for all sorts of perishable food stuffs--meats, poultry, berries, etc.--and on the whole find freezing preservation labor-saving and quite satisfactory, while the method gives a profit to the cold-storage operator. There are indications that the Port of Seattle Commissioners are about to adopt the locker idea for one or two of their cold storage plants."

He writes further: "Surprising evidence of the keeping quality of strawberries at 40° F. after six months freezing storage was afforded in the Laboratory by examination of samples held 71 days at the temperature mentioned. An ordinarily good refrigerator of domestic type was used. The berries were still bright in color and tasted very well. There was no indication of yeast activity. Apart from softness in texture, these berries were very little inferior to freshly-thawed material. As tests on the pack show, yeasts had practically disappeared from the fruit during the freezing storage, which accounts for the good keeping qualities. It is almost unnecessary to say that the berries were in airtight containers, else mold growth would in all probability have made its appearance."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"The weather conditions continue to favor the development of apple scab," he writes April 27th. "A heavy rain during the night of April 25 induced a further discharge of ascospores--in fact, 1819 ascospores were observed on the slides in the spore traps when they were checked the next day. The County Agent at Bentonville states that many of the growers in that area omitted the cluster bud application this year. This, I fear, will be a fatal mistake for many of the growers as every indication points to the fact that there is going to be a scab year similar to 1929....This morning a grower from Springdale brought in two limbs, one of Red Delicious and the other Golden Delicious. The apple pedicels had dark spots on them and he felt sure that he was suffering from an aggravated case of spray injury. An examination showed that the spots were scab lesions, and they were present not only on the pedicels but on the young apples and the leaves."

He had written April 20th: "The frost reported as occurring on April 13, presumably caused no injury to the apple crop, although reports indicate that some injury was observed in the strawberry beds... The first signs of apple scab were observed on the leaves of a non-sprayed Yellow Transparent tree on April 13, and further leaf lesions were observed during the week on the trees in the check plot of the 1935 spray experiment on the varieties Ben Davis, Stayman, Oliver, and Mammoth Black Twig. The lesions are extremely prevalent on the leaves and I believe the copper phosphate mixture will have an adequate test this season against apple scab. Weather conditions favor the disease."

H. F. Bergman, Amherst, Mass.

"I have begun planting seeds from crosses of cultivated varieties made last year," he writes April 26th from the Cranberry Disease Field Laboratory, East Wareham, Mass. "I have 1500 seeds in culture tubes now and will have more than that number to be tubed next week. Cranberries and blueberries are coming along very slowly as it has been quite chilly most of the time. Blueberries are almost ready to begin blossoming and as yesterday was warm and today is much warmer, it will bring them out rapidly. There was apparently very little winter killing of blueberries last winter."

Writing on April 20th of the transfer of his work from Amherst to East Wareham for the season, he mentioned that there had been several reports of crown gall on blueberries this spring. "Dr. Franklin and I went over around Hanover to look up some of the reported cases. We visited three places and found crown gall at all of them. One grower had over a hundred young plants infected."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"Pear blossom opening was further delayed by more cool weather," he reported April 15th. "Full bloom is about a week later than normal. In most seasons full bloom is 7 to 10 days earlier in the northern end of the Valley, but this year full bloom there will be at the same time as in the remainder of the Valley. Full bloom of Anjou at the Medford Experiment Station started on April 13, and full bloom of Bartlett on April 15th...During the early part of the week I completed analysis of the 1934 cluster bases of spurs taken on March 1 from the Time of Irrigation plots. Only in starch content did the 'wet' plots show more carbohydrates than the 'dry' plots, and the differences were small.

"On Friday we began a 4-day program of hand pollination of entire trees, using 9 S.E.R.A. men. Friday was devoted to rubbing anthers out of Bartlett blossoms, the pollen was dried overnight, and the Anjou trees were pollinated on Saturday. Sunday was also devoted to taking anthers out of blossoms. Rain delayed the final day of pollination until Wednesday. This hand-pollination of Anjou trees with Bartlett pollen appears to have commercial promise for Anjou blocks where cross pollination is known to be very poor. On even the largest trees never more than 2-1/4 man-hours were required per tree. The pollen was held in a bottle in the left hand with the stopper strapped to the forefinger. The pollen was applied with a No. 5 artist's brush, by merely touching the center of the blossom. Several blossoms could be thus touched before again dipping the brush in the bottle.

"A scald on Winter Nelis has been brought to my attention. It has been diagnosed by some as a result of the hot weather in 1934, between August 8 and September 8. However, the lot of fruit affected most came from a block of trees in deep, well-irrigated soil. Mr. Ryall informs me that he has observed a similar scald on Winter Nelis at Yakima; and that it occurs in cold storage, is not prevented by oil wraps, and does not increase upon ripening the fruit. This Winter Nelis scald on Medford pears has rather consistently caused a 30 cents per box discount on the prevailing $2.83 per box New York auction price."

He wrote April 8th: "Oats made almost no growth where ammonium sulphate has been applied for three falls. Where this nitrogen fertilizer was omitted last fall for the first time in four years, the oat growth is poor. Where the nitrogen was applied last fall, the oats and volunteer mustard are making much more growth than where nitrogen was applied on February 27th this year. The fact that oats show this response to nitrogen on land that has had vetch turned under for three seasons indicates that a fair stand of vetch is not adding enough nitrogen to adequately supply growth needs of oats. It seems possible that if there is not enough nitrogen for oats, there is not enough for pear trees."

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"Our spring climatic conditions continue to be ideal for the fruit buds," he writes April 25th. "Cherry trees are in full bloom and many are a little past, with ideal pollination weather throughout. Maximum daily temperatures have ranged from 65 to 72° F. during the past week, with moderate winds and no rain. Barring a killing frost, the cherry crop should be good. Apple blossoms are developing normally and the date set for full bloom, May 4th, should be just about right. The clusters are starting to separate on practically all varieties.

"A large number of orchards this year are being sprayed with summer strength lime sulphur for mite control. This, of course, would control any mildew infection and from all appearances perhaps this will be good insurance this year as Mr. Reeves is finding earlier mildew infection this year than any year previous. In fact, in his experimental plots he has already put on a mildew spray, even before the clusters have separated. He will, of course, follow up at the regular pink stage and later sprays as well.

"The increasing alarm over the mite situation has stimulated growers in spite of their financial plights to put on additional sprays for this pest. Many orchardists now believe that the damage done by these mites is more far reaching and serious than the damage from codling moth. With the uniform recommendations for codling moth sprays this spring, a little more confidence is being shown by the growers than heretofore in their codling moth program. Here again the printed page seems to have more effect than verbal advice.

"Mr. Mayne and myself have just completed our bud records for this season. These records were taken at an earlier stage in the development of the buds than in years past and we found that examination of the buds was greatly facilitated by working with them at this stage as the blossom clusters are more easily recognized than when the leaves have made more growth. Our records again this year indicate that the biennial bearing condition of Yellow Newtown apples can be definitely broken by heavy early thinning and annual bearing continued thereafter if attention is paid to the leaf to fruit ratio in subsequent thinning."

Elmer Snyder, Fresno, Calif.

Writing on April 20th, he states that during the week a trip was made to Oakville, Chico and Elk Grove experiment vineyard plots. The rainfall at these plots had been, to that date, 40, 30 and 20 inches, respectively--all records above the seasonal average for the station. March and early April temperature records at these localities were subnormal, resulting in later growth starting of vines.

FRUIT PRODUCTION

C. F. Kinman, Sacramento, Calif.

"Peach fruits have grown very slowly so far this spring," he writes April 24, "possibly due to the cold, wet weather we have had. We have had an abundance of rain and the Sierra Nevada mountains east of here are banked high with snow, so there will be an abundance of water for summer irrigation. This is the first time in 15 years or more that the rainfall at Sacramento has been up to normal. We have had over a week of dry weather now which was very much needed by the stone fruit crops.

"Aided by our climatic conditions, brown rot has made headway in our cherry and apricot orchards. In a few sweet cherry orchards that were not sprayed and the winter cover crop was allowed to remain growing, the cherry crop will be very light if any of it at all is marketable. The few fruit that set are speckled with small spots of brown rot infection that will probably develop and ruin the fruit in transit.

"In orchards where winter cover crops were worked under early and the trees have been thoroughly sprayed three or four times, the set of cherries was fair and brown rot infections not nearly so numerous as in untreated trees. I cannot guess just yet as to what percentage of a crop of clean fruit there will be on trees that were thoroughly sprayed. Where only one spraying was given, especially in orchards where the cover crop was allowed to remain, the crop will be very light if there is any at all that is worth shipping."

A. D. Shamel, Riverside, Calif.

Writing on April 23d, he reports that the citrus progeny test plot at Fontana, Calif., which was planted in 1926 with some of our most striking Marsh grapefruit, Valencia and Washington Navel orange, Eureka, Lisbon and Villafranca lemon bud sport propagations, was visited during the week.

"This test has gone on long enough to prove that the characteristics of the parent bud sports have been transmitted through budding," he says. "Accordingly, in consultation with the superintendent, the trees of the commercially undesirable strains were selected for replacement this spring through top-working and replanting. Further observations on the performance of some of the surviving progenies will be advisable, particularly those in which the trees show some indications of commercial value.

FRUIT PRODUCTION

A. D. Shamel (continued)

"The Washington Navel and Valencia orange trees are now in full bloom in the orchards we have visited. In the Navel orange groves which have not been picked a heavy drop of the fruit is now taking place, so that every effort is being made to finish the picking in these groves so as to save as much of the very ripe fruit as possible....Prices have improved recently and the Navel orange growers who have been able to hold their crop on the trees successfully have been considerably benefitted."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"In the earlier districts apples were in bloom from April 24," he reports April 29. "Around Wenatchee king blossoms on such varieties as Stayman were open over the week end. Full bloom should occur April 29-30....We have experienced clear warm days with still cool nights. Frosts occurred on the nights of April 22, 23, 26, 27 and 28. Temperatures as low as 25° were recorded on Saturday night and on Sunday morning orchards in the Rock Island district and at the lower end of the East Wenatchee section had turned from white to brown, with evidences of heavy localized damage to the crop in these areas."

He had written earlier: "The price of apples has made a spectacular come-back, and although nearly all of the fruit is out of the grower's hands, the fact that apple prices can take an upward surge has caused growers to plunge into their spring work with hope refreshingly renewed. In a month's time Winesaps have jumped from 85 cents to $1.50 f.o.b. (for certain grades and sizes).

ADMINISTRATIVE NOTES

DO YOU--

Always change the letter of authorization number on transportation requests when they are used on a different letter of authorization than the one for which they were issued?

Does your automobile mileage report indicate that the mileage reported does not include mileage within corporate limits of your official station--and that the points visited were inaccessible by public carriers?

Do you furnish the correct number of itinerary reports (2) and automobile mileage statements (3)?

Is the voucher stamped with the "Domestic origin" certification?

NUT PRODUCTION

H. L. Crane, Albany, Ga.

"Blossom records were made in the experimental block at the Simpson Nursery and Orchards at Monticello, Fla.," he writes April 27. "Yield records secured in this plot of trees, which was used by Mr. Moznette of the Bureau of Entomology and Plant Quarantine in nut case-bearer control work last year, showed that certain plots yielded from two to three times that of similar plots on which the nut case-bearer was not controlled.

"We were very much interested to see if the trees which bore a heavy crop last year came back this year with a good bloom. The results were quite unexpected, in that we found that blossoming of the trees over the entire experimental block was very light with the exception of an outside row which had lots of space in which the root systems of the trees could feed without interfering with the root systems of adjoing trees. This outside row, although last year it was one of the heaviest producing rows, this year has from two to three times the amount of bloom on it that any other row in the experiment has, which clearly shows the effect ample spacing of the trees has on crop production and the blossoming of the trees the following year."

C. L. Smith, Austin, Texas

"The weather during the week was quite cool," he writes April 13, "and as a consequence the development of pecan shoots, catkins and pistillate flowers has been slowed up a great deal. At Brownwood, the temperature on the station reached 29-½° F. on the morning of April 13. It is estimated that the damage to the young trees will be about the same as occasioned by the April freeze in 1933. The trees were not quite as far advanced in growth this year as they were in 1933, but the damage will be very serious."

J. L. Pelham, Shreveport, La.

Writing on April 20, he reports that a careful examination of pistillate flowers showed that many of the stigmas were covered with dust as a result of the dust storm of April 5. It is entirely possible, he believes, that some are so completely covered that pollination will be prevented.

B. G. Sitton, Shreveport, La.

"In the J. H. Fullilove orchard the pistillate flowers are just beginning to show," he writes from the U. S. Pecan Field Station on April 20. "In the Chase orchard there is a marked difference in the appearance of growth on the trees in the various fertilizer treatments. The more vigorous the tree, the earlier and stronger the growth and the earlier the appearance of the pistillate flowers. The check on no fertilizer plots are just showing catkins."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"Filbert blight is becoming quite prevalent on current growth in a small varietal orchard on the college farm at Corvallis," he writes on April 27.

"Many opening buds have been attacked and killed before they could expand. A large number of shoots of current growth have also been infected mostly at or near the base of the stem, resulting in girdling and death of the shoots. Preliminary results of inoculations made during rainy periods at approximately monthly intervals during the fall and winter of 1934, and spring of 1935, indicate that some of the buds were infected during late fall and the bacteria were carried over winter in latent bud infections. However, the bulk of the infections which have developed appeared to have taken place in February and March, 1935."

He had written April 20: "A trip was made during the latter part of the week to a filbert orchard near Crabtree, Oregon, to study the cause of a reported dying off of trees in that planting.

"Rhizomorphs of the mushroom root rot fungus (Armillaria mellea Wahl.) were found on the surface of the collar and roots and typical white mycelial mats were found in the cambial region of the tissues affected. There is, however, some question as to whether or not mushroom root rot is the sole cause of the trouble, since some of the trees were found girdled at the crown without the presence of rhizomorphs or mycelial mats in the tissues. Cankers due to bacterial blight were also found on young twigs in the same planting. However, it is questionable if this disease is responsible for most of the damage noted."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Mr.

"During the past week the snow has melted rapidly so there is now little to be seen except a few drifts," he writes April 27. "The ground has not dried out sufficiently to permit of farming operations as it still contains considerable frost.

"The potato market is very weak at the present time, with few sales. There are still several thousand cars in the county to be shipped.

"The seedling potato plants in the greenhouse are growing rapidly and will be large enough for potting within a few days."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

"General growing conditions have not materially changed in this section since my last report," he writes April 30. "The period of dry weather continues and is now growing to serious proportions in view of the prevailing high temperatures and strong winds. Total rainfall for April was 1.12 inches, thus bringing the total deficiency since January 1 to 5.21 inches. Late plantings of cabbage are now practically worthless and the potato crop in general is suffering to a marked degree from lack of water. Other crops such as beans, cucumbers, and squash are not damaged so far but will show serious losses in yield unless we get rain within the next week.

"Regardless of the losses in yield on the cabbage crop, our local growers have enjoyed the best spring season in many years. Prices have been unusually good throughout the shipping period and there are few, if any, growers who have not made an excellent profit on their operations. Disease and insect losses have been very low, consequently a fair grade of produce has been shipped by all planters...Beans, squash and a few potatoes are being harvested at this time. This is the earliest that I have ever seen these crops harvested in this area."

DAVID GRIFFITHS

Referring to our late colleague, the Gardeners' Chronicle (London) for April 13, is quoted by the Daily Digest as saying:

"....Griffiths did more than any other man to interest Americans in the home production on a commercial scale of native and foreign bulbous plants. He had devoted himself for many years past to the mass production of lilies of every kind that could be induced to flourish in the United States.

"It was on his advice and through his personal endeavor that the United States Department of Agriculture established the U. S. Bellingham Bulb Station at Bellingham, Wash., and it was there he applied a method of rigorous selection and elimination, and he was gradually evolving a remarkable series of hybrids of the California group of lilies like Lilium pardalinum, L. Parryi and L. Humboldtii.

"In his search for fine hybrids, Griffiths had the interests of horticulture at heart more than those of pure science, and his aim was the production of a series of hybrid lilies that should take a permanent place in the gardens of the United States. The first batch of these has already been issued and some have reached the hands of interested individuals in this country; but Griffiths made no secret of the fact that they are the forerunners of a finer set...."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"A spring blizzard, on the anniversary of a similar storm in 1929, hit the station from the northwest on April 24, following a light dust haze and showers on the 23d," he writes April 27. "The storm continued throughout the 25th and tied up highway and airway traffic in all directions. Large drifts formed about the buildings and in the shelterbelts; during the duration of the storm it was scarcely possible to see from one building to another at the station.

"Clear skies the 26th enabled most of the crew to get to work--sidewalks and drives were cleared of drifts and the entrance to the storage cellar, which had drifted full to the top of the doors, was cleared out. The precipitation was hailed with delight by Cheyenne and surrounding area, as it is expected to do much toward replenishing the water supply in the City reservoirs. Some loss of livestock is expected. Denver reports the heaviest snowfall in one storm in the past 50 years....Much of the snow has melted at this writing; the little remaining on the flat lands will be gone by evening. Jonquils emerge from the snow apparently uninjured.

He had written April 21: "Another dust haze enveloped this area on the 15th, coming in from the southeast in the afternoon. It was dispelled by northwest wind the following day, which was followed by a wet snow turning to rain. Jonquils continue to bloom and some of the shrubbery is putting out leaves."

POTATO INVESTIGATIONS

W. C. Edmundson, Greeley, Colo.

"The drought has been broken--at least for the present," he writes April 29. "Last week 1.53 inches of rain fell at the station. The storm was quite general throughout the Rocky Mountain region. Heavy snows fell in Wyoming, south of Greeley, and in the mountain region. I believe the precipitation reached 3 inches in Denver. The moisture went quite deep in the soil and has been of great value to all crops. We began plowing our potato ground this morning, the ground being in excellent condition for plowing."

ADMINISTRATIVE REMINDER!

Have you sent in your seasonal orders for supplies--as requested in the March 1 NEWS LETTER, page 72? Don't Delay! Get 'em in!

THE KING'S ENGLISH

One of the Department's editors who happened to see the News Letter's comment on scientific English, April 1 issue, tells me the story of the employer who had rather lost patience with his stenographer. He called her in and pointed out three mistakes in a letter she had just transcribed. "These mistakes are yours," he contended, "but even if I should dictate an ungrammatical sentence, it's your business to correct it. You know the King's English, don't you?" She nodded. "Of course," she replied, promptly. "If he wasn't he wouldn't be King."

The same editorial friend sent me a comment from Nature (London) on redundancy in scientific publications. "....Looseness of thought and indifference to the accurate and correct use of words are a primary cause of the redundancy noticeable in many scientific papers," it says. "A clear idea of what he is doing and why he is doing it is as essential to the research worker in writing his paper as it is in the conduct of his experiments. A command of terse pregnant English is a valuable possession to the writer of a scientific paper and is worth much trouble and patience to acquire." The length of a scientifif paper, it continues, might well be reduced by 20 percent with advantages both in clarity and in diminished printing costs. This reasonable estimate is enough to indicate that the matter is one well worth close attention by scientific societies. "One of the difficulties is, however, the lack of perspective which sometimes characterises scientific writers--a failure to see their topic in its true relation to science as a whole, and a tendency to claim for the normal or average the fuller and more detailed treatment which should be the privilege of those few papers which describe some really outstanding achievement or advance..."

It may be well to stop right here and announce that these incidental comments on scientific English are not intended to advertise the News Letter editor's knowledge of the subject. He wouldn't know whether your English is scientific or not, and as for redundancy--privately, he has always considered that a virtue, not a fault. But it so happens that the matter of effective presentation of material offered for Department publication is rather more important now than it has been, for your manuscript must pass over the desk of a man who not only knows how the thing should be done--but who has done it.

"One answer to your questi n on the 'batting averages' in scientific English," writes a member of the Office of Information's editorial staff, "is Farmers' Bulletin 1744, 'The What and How of Hybrid Corn.' Seems to me it is about as good scientific English as could be written for the purpose of 'diffusing' information."

Farmers' Bulletin No. 1744 is by Frederick D. Richey.

ADMINISTRATIVE NOTES

Specifications for Motor tricks, etc.

A decision of the Comptroller General (A-59182) states that a stipulation in specifications for motor trucks as to a particular method of mounting a spare tire is not sufficient reason for rejection of the low bid. This brings up the situation that any bids for equipment which definitely state types of construction or materials from which articles are to made MUST show definite requirements making the special features necessary.

Incidentally, when transmitting orders for articles which will require asking for competitive bids, it will assist greatly in the preparation of specifications if a full statement concerning requiremements is given, together with special reasons for the need that certain features to be embodied in the equipment specified.

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Expense Accounts

Another decision (A-59035) clarifies a matter which has been interpreted differently by various departments, bureaus and offices. This concerns the provision of law which provides that postmasters, assistant postmaster, and chiefs of field parties are authorized to administer oaths, when required, in connection with expense accounts.

The Comptroller General has now ruled that the term "chiefs of field parties" means persons in charge of employees engaged on field work of an ambulatory nature--such as a surveying party--and is NOT intended to cover a person in charge of an organization which has fixed headquarters, such as our field stations.

Expense accounts and other official papers requiring the execution of oaths must continue to be executed before notary publics, postmaster, assistant postmasters, or, in special cases, persons especially designated to administer oaths for expense accounts, etc.

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--and, speaking of expense accounts, do you ever wonder why it is so long before you get your expense account check? Maybe you are one of the employees who continually submit accounts and fail to be guided by previous experience of suspensions, fail to furnish necessary information which would make unnecessary returning the account, or fail to submit the account in duplicate, so that it is held until copy can be made. If you have an advance of funds, did you attach the required pink voucher cover (Form 1039) and was it properly made out and signed? Or did your account happen to come in just when accounts were being closed for the monthly statements! The Business Office desires to give you the best service it can on such items and constructive criticism is welcomed. But cooperation is the greatest of time savers for all concerned.

ADMINISTRATIVE NOTES

Terminating Contracts, etc. In previous NEWS LETTERS you have been asked to notify the Business Office of any terminations of telephone, public utility contract, or short term rental agreements. However, some of you must have forgotten, for scarcely a month passes without our finding that telephone service has been discontinued or a contract terminated--and no notice given us. This may not seem necessary to you but it is extremely important in Washington where we must keep our records in strict conformity with those of the Accounting Office and be able to furnish up-to-date information at a moment's notice. We also have certain periodic reports to make concerning these contracts and it is not a little embarrassing to find that contracts have been terminated without our knowledge--this is particularly true of telephone contracts, which require a supplemental contract for terminations.

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Lost Checks. A few reports have been received recently of lost checks. Persons sending in the letters reporting the non-receipt of checks have apparently forgotten the instructions given in the NEWS LETTER sometime ago, and therefore they are restated here:

> "As the Disbursing Office will not institute tracing procedure upon the request of anyone but the payee, it will expedite the matter if a letter is prepared for the signature of the person to whom the check was drawn, and submitted to the Washington Office in TRIPLICATE, signed in DUPLICATE. The Disbursing Office requires that the letter BE SIGNED BY THE PERSON TO WHOM THE CHECK WAS DRAWN so that in case the check has been cashed the signature can be compared. The same procedure is necessary in the case of a lost check made out to a firm. In that case the person who usually endorses the checks for the firm is the one who should sign the letter.

AND THAT REMINDS US--

Do you send the memorandum copies (yellow) of bills of lading in to the Business Office as required?

Do you keep a file of the orders and regulations sent out from Washington? If not, you should do so; if you do, then this file should include the notices embodied in ADMINISTRATIVE NOTES of the NEWS LETTER. You can never tell just when you will need the very information we are trying to give you in these notices.

How is your supply of Forms H. C. & D.-1 and H. C. & D.-1-a (amendment)? Evidently the supply at some stations has been exhausted for field employees are including in general correspondence requests for amendments to letters of authorization, etc. If you desire a new letter of authorization or an amendment to an existing letter, make your request on the proper form and send it in through your project leader. In this way the necessary information is given and approved. If your supply of forms is exhausted, we will send more upon request.

Vol. 7, No. 10 May 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., June 1, 1935 No. 11

FRUIT DISEASES

"Fresno, Calif. and vicinity is a poor place for experimental work involving spraying," writes W. S. Ballard from the U. S. Fruit Disease Field Laboratory, Fresno, Calif.," for the reason that comparatively few orchardists own spray rigs, and it is practically out of the question to ask a grower to pay for the work of putting on experimental spray. However, we have had some very striking results this spring and early summer from the use of zinc sprays applied before the trees came into bloom.

"The rainy season last winter interfered with spraying after January 1st, and previous to that we were busy with moving the Laboratory. Nevertheless, Beauty, Kelsey and Climax plums sprayed early in February with zinc sulphate (one-half pound per gallon of water) and with zinc sulphate and lime mixtures show practically no little leaf at the present time. It seems entirely possible, however, that little leaf may develop later this season when the amount that was absorbed from the winter spraying has been used up by new growth.

"Spraying after the foliage comes out is probably impossible on account of the deposit that would be left on the fruit and which would make it unmarketable as fresh fruit. However, spraying applied after the crop was harvested last season produced a distinct improvement, and we expect to repeat that work this year. The spraying applied early in February when the buds were swelling did no damage, and the improvement was surprising for the reason that rains and foggy weather came within a few days after the spraying was done. We examined some of the twigs

W. S. Ballard FRUIT DISEASES (continued)

after a rain storm and found that there was still a small amount of soluble zinc remaining. Both the zinc-lime mixture and the straight zinc sulphate and water produced marked results. The fact that the zinc-lime mixture has no zinc in solution that can be determined by delicate tests and also the fact that it rained shortly after both the zinc sulphate and water spray and the zinc-lime sprays were applied, would seem to indicate that a very small amount of zinc is all that is needed to bring about a marked change in the little leaf trouble.

"I applied zinc sulphate in trenches around some experimental trees at the El Solyo Ranch west of Modesto, and find that injury resulted where the trenches were left open and we depended upon rain to wash the zinc into the soil. The soil in that case is quite heavy and it is evident that it was not washed down fast enough to prevent the concentrated solution doing much damage to the roots. The trunks and limbs of some of these trees are gumming severely, and the foliage has dropped. Fortunately, these trees are in an abandoned corral spot, so that the damage is really unimportant.

"Similar injury has been caused around Fresno, especially in a nearby peach orchard in which zinc was applied in February and was washed down by irrigation. In this case the soil is sandy and the damaging effect is quite surprising especially in view of the fact that last year I treated 10 trees in this same orchard early in April and got no very serious injurious effect. There was some leaf dropping and some burning of foliage but the trees were later so much improved that the results induced the owners to try the treatment on a wholesale scale this year with the result, as I have indicated, that considerable damage has been done ... Altogether, from this year's and previous years' experience with soil treatments, it seems to me that this method of curing little leaf had best be avoided if possible. The beneficial effects from spraying seem to offer hope of spraying during the dormant season as being the most desirable method treatment, especially if this can be supplemented by later foliage spraying, perhaps after the crop is off.

"Last summer Dr. Chandler drove some zinc points into two little leaf peach trees in the block in which I am working, and at the present time the treated limbs show marked improvement over the untreated limbs on the same tree. However, there has been much gumming where the zinc points were inserted and it remains to be seen what the eventual outcome of this gumming may be. It is quite possible that the zinc points which stick out about one-quarter of an inch when first put in will soon be grown over and gumming may cease. It is also possible that zinc applied in this way will remain effective over a long period of time, but it evidently requires considerable time before they begin to produce results. We used zinc points on plums, peaches, and apricots last winter, but at the present time no results can be definitely stated to be showing.

W. S. Ballard FRUIT DISEASES (continued)

"It may be worthwhile to call attention to the fact that there has been more peach leaf curl this year than I think I have ever seen in California. The reason has been that we have had a particularly rainy spring, and the moisture together with the cool weather has been responsible. Previously for a number of years the weather has been abnormally dry during the spring, and growers have gotten out of the habit os spraying. One wonders where all of the peach leaf curl spores could have come from to be so completely spread over entire blocks of susceptible varieties of peaches and nectarines. The statement is commonly made that peach curl infections take place at the beginning of the growing season, and that nothing can be accomplished by spraying after the foliage is out. However, I examined a number of trees in a badly infested block and found vigorous shoots in the lower parts of the trees on which leaves situated four, six, and even eight inches from the base of the twig bore curl infections. The evidence seemed quite definite that these leaves represented secondary infections. The amount of this secondary infection, however, did not seem to justify foliage spraying after the trouble appeared. It is also true that several pathologists have succeeded in establishing secondary infections, although the percentage of cases was, as I remember, comparatively low...."

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SAYING IT WITH FLOWERS

A Press Release tells of the origination of three distinctive new varieties of carnations at the Department's greenhouses here as a result of crosses between older varieties. The new flowers, which have been given the names Rigoletto, Mavourneen and Carlotta, are described as of easy culture, readily propagated, and free flowering, and have shown no susceptibility to rust. The flowers are well-formed and full and have good keeping qualities. Several commercial growers who have visited the greenhouse have commented favorably on the new varieties which have long, strong, and straight stems and calyces that do not split.

"Rigoletto is a new dark red variety which was derived by cross-pollinating the varieties Topsy and Spectrum Supreme," says the announcement. "The flower measures three and three-fourths inches and has velvety-textured petals which shade from carmine to oxblood red, thus producing an effect of rich and vibrant color. Mavourneen resulted from the cross-pollination of the varieties Spicy White and Illuminator. The flower, which measures three and one-half inches, belongs to the light pink class and in shade is cameo pink. Carlotta is a new variety in the dark pink class which was developed by crossing the varieties Spectrum Supreme and Yuletide. The flower measures three and one-fourth inches and in shade is spinel pink with a rose case."

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

Writing from the Ozark Fruit Disease Laboratory on May 18th, he reports that he has recently seen several commercial orchards which are now showing severe scab infection. "In all such cases it has been found that one or possibly two spray applications have been omitted. In a season such as this one, this will prove costly. On the other hand, where commercial orchards have been sprayed at regular intervals, good control of scab has been obtained.

"Some of the experimental plots at Marionville are showing some scab infection. In the check plot I should say that 98 percent of the first formed leaves are now completely scabbed and many of the new leaves are becoming infected. Many of the fruits in the check plot are now infected. Pedicel infection is very prevalent.

"A recent examination of all the plots showed a good set of fruit on most of the trees. Some trees are too heavily loaded, but in general there is a good distribution on the trees."

He had written May 4th: "Apple scab on foliage was first observed on April 16 in the plots at Marionville. This is the earliest date in the past 4 years that we have observed foliage infection in this district. Scab is now very abundant in the check plot.

"In 1933 there was an intervening period of 14 days between the cluster bud and calyx sprays. In 1934 there was a similar period. This spring the cluster bud spray was applied April 1, and the calyx spray did not go on until April 26, making a spread of 26 days between sprays. Our unusually cold and wet weather last month was responsible. Warm weather following the cluster bud spray caused a small percent of the buds to open. Temperatures soon dropped again and there was a period of nearly 10 days of very little tree activity. Temperatures the last 10 days of the month more nearly approached the normal and trees came into full bloom during that time.

"There has naturally been some apprehension as to whether there has been adequate pollination. It remains to be seen what effect the cold weather has had on the set of fruit and if there will be excessive dropping of fruits later on.

"Mr. Paul Shepard, Driector of the State Fruit Experiment Station at Mountain Grove, reports that most of his peach varieties have come through in excellent condition. Elberta and Hale show the lightest set but he believes they will produce a profitable crop."

FRUIT DISEASES

Leslie Pierce, Vincennes, Ind.

"Peach leaf curl is general and severe on trees which were not sprayed with a fungicide during the dormant season," he writes May 12. "In our experimental orchard, sprayed dormant with bordeaux 3-3-5- with lubricating oil added to control scale, there is an average of about one cluster of leaves per tree showing the disease.

"Grimes apple trees in the Vincennes area were in full bloom on April 19, Stayman and Delicious on the 21st, Winesap on the 22nd, Turley on the 26th, and Rome on the 27th. Weather conditions were very favorable for pollination during the period April 19-26. As a result of these favorable conditions following the freeze which occurred the night of April 15, a heavy crop of fruit is set on all the commercial varieties except Delicious.

"Spraying with water to prevent frost injury was given a trial in the Reed & Son orchard during the early morning hours the night of April 15. The application of the spray was commenced at 1:30 A. M. the 16th, at which time the temperature had fallen to 28° F. Later in the morning a thermometer in a low place in the orchard registered 24°. The orchard being equipped with a stationary spraying system, it was possible to cover 30 or 40 acres of trees in the 4 1/2 hours the spraying was in progress. The spray froze as soon as it touched the trees, giving them the appearance of having been exposed to a heavy sleet storm. Instead of preventing injury to the blossoms, Mr. Reed estimates that the fruit-set on the trees sprayed with water was reduced about 50 percent.

"Sycamore blight is general and severe. Many trees have lost 95 percent of their leaf-buds. The infection occurred during a period of wet, cool weather the first week in April, at which time the young leaves were just beginning to unfold.

"With the exception of a few orchards in the Decker section, there is practically no apple scab present in the orchards in Knox County. The disease is reported as being very severe in a number of orchards in Kentucky and Southern Illinois. Mr. W. W. Magill, Kentucky Experiment Station, writes me that the crop on susceptible varieties in several orchards in his State has been completely destroyed by early scab infection on the blossom pedicels. A moderate amount of scab is showing on the foliage of the check trees in our experimental orchard, but none has developed on the fruit or pedicels.

"The temperature record for April shows an average daily departure from normal of -2.7 degrees. The precipitation for the month was 2.83 inches, a departure from normal of -1.13 inches. The rainfall for the first 12 days in May was 3.08 inches."

FRUIT DISEASES

Lee M. Hutchins, Fort Valley, Ga.

"Present prospects for the peach crop in central Georgia are very good," he writes on May 6. "The crop was seriously threatened early in the season by a heavy infestation of curculio. Growers followed the old practice of bumping trees early in the morning and catching mature beetles on sheets as they fell to the ground. Drops have been repeatedly picked up and spray has been pretty thoroughly applied. As a result, growers in the Fort Valley territory have for the most part succeeded in getting the curculio under control, and it is probable that damage from a second generation shortly before harvest will not be severe. Also, the growers have on the whole thinned extensively, and this should improve the size of the fruit when it ripens."

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John C. Dunegan, Fayetteville, Ark.

"The 1935 season is certainly starting out as though it were going to be a 'Plant Pathologist's Year'," he writes May 4. "The following diseases, in addition to apple scab, were noted during the week:

Phytophthora cactorum on peach nursery stock
Sclerotinia fructicola on English Morello cherries
Sclerotinia Seaveria on English Morello cherries
Gymnosporangium Juniperi-virginianae on apple leaves (Oliver variety)
Coccomyces hiemalis on English Morello and Wragg cherry leaves."

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Paul W. Miller, Corvallis, Oreg.

"Studies on the cause of prune scab were carried on during the week," he writes May 11. "Small balck sunken spots, from 1/2 to 1 mm. in diameter, are now in evidence on many young prunes. These dark areas are located for the most part at the apical end and in the central part of the prune under the shucks. Thrip larvae were found inrelatively great numbers veneath the shucks in many cases. Preliminary evidence suggests that these insect larvae may be responsible for these small black areas.

"Microscopic examinations of typical spots failed to reveal any micro-organism. Platings were also made from typical cases to check on the microscopical examination. Histological studies of these spots are also in progress. Fruit which has been kept under paraffin-treated bags shows no evidence of these spots. Many prunes showing these black areas have been tagged and it is planned to keep them under observation until maturity to see if typical scabby spots develop."

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"In looking over the orchards in full bloom this year," he writes May 7, "I have concluded that many of the trees here will eventually become biennial if the amount of bloom is any indication. Unfortunately the grower will only recognize his biennial bearing trees in the 'off' year when there are no blossoms, but from the tremendous bloom and set on certain varieties, unless some corrective measure is applied, I am convinced that biennial bearing will be on the increase in a few years. .... I have just been informed by Irving Smith that over 100 Delicious and about the same number of Pearmain trees in one of their orchards are almost entirely 'off' this year, a condition which according to their records has never occurred before."

He had written May 1: "The Wenatchee Valley experienced its first visit of Jack Frost on Saturday night, April 27. Temperatures varying from 25 to 28° F. occurred throughout the orchard sections. Pears, cherries and apricots were hit the hardest. The apricots were injured in practically all sections, while the cherries and pears suffered only in the low ground. Apples were injured in the low portions of East Wenatchee, Melaga, Rock Island, Cashmere, Dryden and Peshastin, while the trees growing in higher ground were not affected at all.

"At East Wenatchee I examined several orchards where a very sharp line sometimes existed in the same orchard. I had an opportunity of making an observation as to the effect of early irrigation on frost damage. The idea has been prevalent among many growers that if the ground is wet the likelihood of injury from frost is less than when it is drier. In East Wenatchee I checked as carefully as I could the effect of early irrigation and found no difference in the irrigated and non-irrigated orchards. We feel that if any protection is afforded by this early irrigation it is one of little consequence from a practical standpoint. There was practically no damage to apples in the higher areas in the Wenatchee district proper."

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Elmer Snyder, Fresno, Calif.

Writing on May 4, he reports that buds obtained last season from vines showing fruit varying from the normal variety were budded into mature vines. "These buds started growth this spring and are showing fruit clusters at this time," he comments. "Thus in one season it will be determined whether or not the variations we selected come true to the variant type or revert to the normal fruit of the selected variety. The variations selected occurred either in our own vineyard or in commercial plots. The varieties showing variation were mainly Sultana, Sultanina and Panariti--all seedless. Variations in other varieties have been noted for propagation and selection this season."

FRUIT PRODUCTION

A. D. Shamel, Riverside, Calif.

"The Navel orange blossom period is about over in this district," he writes May 13th, "and the indications at this time are promising for a heavy set of fruit. The climatic conditions have been favorable during the present season for the growth of the trees and the development of a maximum amount of strong bloom. In orchards which have been given consistently good cultural care the trees appear to be in better condition than for several years and even in neglected ones the trees show indications of an improved vigor of growth as well as producing an abundant but rather weak bloom.

"The grapefruit harvest in this district begins this week and will continue throughout the summer. Little picking will be done until next month and the bulk of the summer grapefruit crop will not be harvested until July and August. The crop is a heavy one and of desirable commercial sizes and grades so that the growers expect profitable returns from it. The Valencia harvest is proceeding here as rapidly as the prorate permits. The late harvested Navels are not bringing as good prices as the growers anticipated from their previous experience, owing to the rather weak, over-mature condition of the fruit and the market preference for Valencia oranges."

NUT PRODUCTION

Milo N. Wood, Sacramento, Calif.

"It appears that there will be more orchards pollinated this year than was the case last," he writes May 15th. "The change in the weather caused dichogamy to be pronounced in some of the walnut varieties. In some orchards fully 70 to 80 percent of the pistils lack means of natural pollination. Other orchards under more fortunate circumstances will probably set 50 percent of the crop from natural pollination."

J. R. Cole, Albany, Ga.

Writing from the U. S. Pecan Disease Field Laboratory on May 18th he states that he found pecan scab doing considerable damage to the Schley variety in the vicinity of Fort Valley and Macon. "This is the fartherest north that I have ever seen the disease on the Schley variety," he comments.

C. L. Smith, Austin, Texas.

Writing on May 3d he stated that, judged from reports from many sections, the pecan crop will be heavy in Texas and Oklahoma this year unless some factor interferes later in the season.

NUT PRODUCTION

Milo N. Wood, Sacramento, Calif.

"When walnuts began to bloom in the interior valleys," he writes, "it appeared that there would be less dichogamy trouble than is usually the case. The cool weather, however, did not continue. Recently a sudden spell of warm weather resulted in a very rapid growth of the catkins. Heavy rains accompanied by winds and in some cases hail, destroyed the catkins, which made the dichogamy trouble all the worse.

"As a consequence, growers became very much alarmed over the necessity of artificially pollinating the early blooming varieties. I therefore found it necessary to spend a few days in advising the growers in regard to the procedure in artificial pollination. It was previously thought that this would not be necessary.

"Incidentally, growers in districts having catkins in profusion are picking them and selling them. The development of this side line is quite interesting. Varieties are not producing catkins in such abundance as is commonly the case; therefore, catkins are in considerable demand for artificial pollinating purposes."

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Geo. P. Hoffmann, Meridian, Miss.

"Strawberry shipments are continuing strong," he writes May 4th, "two to three express cars moving in a single day from the Marion District.... Pecan growers are optimistic over the crop promise this year, with trees in heavy bloom."

He had written April 13th: "The strawberry season for this year is opening much earlier, by possibly three weeks, than in the past. Commercial car lot shipments began moving from the Marion district -- in the vicinity of our Experiment Station--April 8th. The quality of the berry is generally good, with good prices prevailing.

"Observations made of our plot planting of the Blakemore variety of strawberry is in agreement with experimental findings in North Carolina in that the heavy plant growth is apparently reducing the yield and quality of the berries."

"The winter cover crop of Austrian peas and vetch is the best I have ever seen and is more than a complete green blanket," he wrote late in March. "Visitors marvel at this crop, with the 'old timers' commonly referring to the Station farm as 'one of the oldest and thought most worthless farms in this section,' and asking what we used and how we did it. Actual weighings indicate that the crops are growing better all the while."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"During the past few days we have been engaged in potting the potato seedlings," he writes May 11th. "The number potted up to the present time is 11,185. There will be a few hundred more to pot later. Over 1,300 sprouts, grown from foreign introductions, have been received from the Plant Quarantine Greenhouse, Bell, Md. The weather remains cool, with frequent showers, so that very little work on the land has been done.

"The potato market has dropped back to the low level which prevailed during the greater part of the winter, the price being 30 to 35 cents per barrel. There are still several thousand cars in the County to be shipped. Because of the continued cool weather the stock on hand is in excellent condition.... The Market News Service at Presque Isle has been discontinued for the season. According to a summary released today, 3,962 cars of certified seed have been shipped from Maine, 32 of which were of the Department's new variety, Katahdin."

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W. C. Edmundson, Greeley, Colo.

"Crop prospects are looking much brighter as the season advances," he writes May 14th. "Saturday .32 of an inch of rain fell, and last night .44 of an inch was recorded at the station. We have plenty of moisture for our immediate needs and prospects for a good run of river water which would last until about the first of July, possibly a little later. There is every indication, however, that we will be short of reservoir water for late irrigation. At present the reservoirs are only about one-third full, which means that we will be short of water in August.... We potted seedlings Thursday and Friday, potting 8,400 in 12 hours...."

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P. H. Lombard, Presque Isle, Me.

"The weather here remains unsettled, cloudy and cold," he writes May 17th. "We hope to get the plots in condition to plant the first of the week. Mr. Bailey E. Brown of Soil Fertility Investigations, Bureau of Plant Industry, is due Monday, May 20th, and will probably want to push the planting of the twin-row experiment.

"This has been the coldest May to date since I have been in Aroostook County--twenty years. The frost went very deep and the soil in places cannot, even now, be harrowed....We will finish cutting our seed today even to the 35-hill lots. When we do get to planting the work should progress very rapidly, weather permitting. Considerable planting has been done in the County this week. These plantings have been restricted to high, well-drained fields."

ADMINISTRATIVE NOTES

Bills of Lading. If you ship articles by freight or express, be sure and make the shipments on Government bills of lading. When requesting material or ordering supplies in the field where charges are to be paid from official funds, send the consignor a Government bill of lading for use in making the shipment--unless, of course, the shipment may be made by Parcels Post, in which case postage can be added on the voucher. Whenever a bill of lading is furnished for making a shipment to you, be sure to fill out the spaces headed "Certificate of Issuing Officer." If you do not, the bill of lading will have to be returned to you for execution before payment of charges can be made.

In some instances where bills of lading have been sent to firms or individuals for making shipments to you, the shipment may arrive before the original copy of the bill of lading does. In this case a form (No. 1060) called "Temporary Receipt" should be issued to the transportation company to hold pending receipt of the bill of lading. You should then write at once to the consignor to find out if the bill of lading was actually used. If not, ask that it be returned to you.

Sometimes, too, shipments will arrive, made on bill of lading, and the bill of lading be lost. In this case a "Certificate in Lieu of Lost Bill of Lading," (Form No. 1061) is issued to the freight or express agent with the number of the original bill of lading entered in the proper space. This "Certificate" should be made out in duplicate, the original being given to the agent to guarantee that charges will be paid by the Government, and the carbon copy mailed at once to our Business Office. If after such a "Certificate in Lieu of Lost Bill of Lading" has been issued, the original bill of lading is received, it should be destroyed to prevent possibility of duplicate payment.

If an occasion arises where you have to issue a "Temporary Receipt" and in reasonable time the original bill of lading is not received, you can go to the agent, withdraw the "Temporary Receipt" and issue the "Certificate in Lieu of Lost Bill of Lading," as explained above.

If you make a shipment as the consignor, the bill of lading should be filled out as completely as possible, and presented to the freight or express agent for signature. When signed, the original must be mailed to the consignee, the pink copy left with the agent, and the yellow copy mailed to our Business Office. Keep a record of the bill of lading number and other pertinent facts about the shipment for future reference in case of loss, damage, etc.

If you do not have a supply of bills of lading or the other forms referred to above, a supply will be sent to you upon request to our Business Office.

ADMINISTRATIVE NOTES

"Rush Delivery" Comptroller General's decision No. A-59777, rendered March 21, 1935, emphasizes the fact that we must not include in specifications any clause stipulating delivery within a specified time (commonly referred to as "rush delivery") unless the emergency of time actually exists.

As an illustration, a bid is mentioned which called for delivery within 20 days. The lowest bidder offered delivery within 43 days. The bid of the next lowest bidder was accepted at an additional cost of $8,383.33. It so happened that the bids were not recommended for acceptance for 20 days and delivery was not completed for 66 days from date of opening of the bids, therefore proving that such an emergency as indicated did not exist, and the emergency delivery phraseology cost the Government an additional $8,383.33.

In view of the above, every project should foresee its needs, within reason, and initiate orders or bids in ample time to obtain the lowest prices for suitable material or equipment.

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"The heaviest rainfall since June 34, 1931, started the afternoon of the 17th," he says in his report for the week ending May 18th. "It was preceded by light hail of short duration and accompanied by thunder and lightning. The rain continued through the night and following day. Gutters are running full, pools of water standing on the flat land, and Chilcott Lake east of the greenhouse is filling up with the run-off. The last of the snowdrifts in the shelterbelt back of the mess hall faded with the falling rain. The precipitation for May to date is 2.25 inches--the average for May is 2.40 inches."

He had written earlier that they had a thunder storm of a few minutes duration of May 6th. Tulips and hyacints were coming into bloom, while the jonquils were beginning to fade out. "The lawns are greening nicely and shrubbery putting out leaves," he wrote, "but as yet the cottonwoods along Crow Creek bottom have not leafed out. Additional moisture in the wintershed has made it possible for the City to remove the sprinkling restrictions temporarily; our lawn sprinkling system was turned on for the first time May 7....An acre tract of land northeast of our reservoir has been prepared as a segregated plot for testing Plant Exploration and Introduction importations of vegetable seeds. A gopher- and rabbit-proof fence is being placed around the tract."

ADMINISTRATIVE NOTES

Appointments Attention is called to the necessity of having recommendations for appointments reach the Washington Office AT LEAST TWO WEEKS IN ADVANCE of the date it is desired to have them become effective. This is to permit us to have them officially approved and advise the recommending officer in time to have the appointee take up his duties on the desired date. Your cooperation is requested in anticipating needs for assistance sufficiently in advance to allow for this necessary two-weeks' period.

Also--remember that there is a ruling now in effect in the Department that in the case of unclassified appointments (such as Agents, Farm Laborers, Unskilled Laborers, and those falling within the $45 per month limit excepted class) only one member of a family must be employed, this ruling having been made in the interest of spreading employment. When requesting an appointment it is therefore necessary to supply us with information as to whether any members of the proposed appointee's immediate family are in the employ of the Federal Government and if so, to give full particulars, especially as to whether any such members have married and are maintaining their own homes.

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Property Did the report of property submitted for the calendar year include all the inventorial items for which you should be charged? Recently it has been found on checking up the records that items of equipment, bought for the use of certain employees, were not on the list. The lists sent to the various field offices are not intended to be regarded as final and complete. Employees are bound by the regulations to check the list with the property for which they are accountable and report any discrepancies. If any items on the list have been lost, a lost certificate must be submitted; if any are worn out and of no further value, this should be reported; and by all means, if you have items of office, field, or laboratory equipment not on our preliminary list as sent you, please advise us about them promptly. We wish to have our property report complete and accurate, and this is possible only through your cooperation in checking your property against our list and reporting any discrepancies.

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Always send us the serial numbers of such new equipment as typewriters, calculating machines, motors, automobiles, trucks, microscopes, and accessories--in fact of any article bearing a serial number. This information is required for the Bureau's property records and is valuable for identification purposes.

....In submitting vouchers for gasoline make sure that the voucher contains statement as to whether the price billed includes State tax.

....If the Form 1034 vouchers you have on hand do not contain the stamped clause in regard to domestic production or manufacture, return them to us for stamping--or ask us to supply you with a rubber stamp for putting this clause on vouchers.

Vol. 7, No. 11 June 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

This NEWS LETTER is for distribution to employees of the Division only, and the material contained in it is of an informal and confidential nature, and is not to be published without securing the prior approval of the Division of Fruit and Vegetable Crops and Diseases. The reports of field workers and others represent, of course, their personal opinions, and so are not necessarily the official and final word on the subjects.

Vol. VII Washington, D. C., June 15, 1935 No. 12

A Day Off. It is supposed to have happened in Hollywood, Calif. At any rate, a man was standing on a street corner, paying no attention to anyone, shaking his head and mumbling to himself: "No, no, no--no, no, no'." Apparently he did not notice the crowd gathering about him, but kept up his "No, no, no!" steadily. Finally a policeman came along and stopped. After listening for a time he walked over and placed a hand on the man's arm. "What's the matter, friend?" he asked. "Nothing at all," responded the other, "I'm just a Yes-man taking a day off."

You know, of course, how I hate to brag about the achievements of the Division--and, anyway, they shout in a much louder voice than I can command--but I just feel that I must take a little time off from being modest to call attention to a superlative form of praise being paid one of our publications--the praise of purchase. For the second time within a year or so the Superintendent of Documents has called on us to loan him copies of one of our bulletins to tide him over until a new edition for sale can be printed.

This latest "best seller" is Miscellaneous Publication No. 168, "Market Diseases of Fruits and Vegetables - Apples, Pears, Quinces," by Dean H. Rose, Charles Brooks, D. F. Fisher and C. O. Bratley. The first edition for sale has been exhausted. This is a lot more impressive that appears at first glance for because of the numerous colored plates used and the resulting expense for printing, the publication sells for 40 cents a copy, while most Government publications range from 5 to 15 cents each. It is gratifying to have our popular bulletins attain circulations of a million copies or so, largely through free distribution, but when the public willingly pays 40 cents a copy for one of our publications, we know it must be good!

POTATO INVESTIGATIONS

W. C. Edmundson, Greeley, Colo.

Writing from the Potato Experiment Station on May 31st, he reports that rain fell on 16 days during May. "Since the 25th of April," he comments, "6.85 inches of rain has been recorded at the station. Yesterday a cloudburst occurred 30 or 40 miles north of Greeley which resulted in a flood. The highways and railroad tracks were washed out. A flood came down Sand Creek which is west of the station, and Lone Tree Creek which is east of the station. After the flood waters had receded, there was not one bridge left intact on either stream. We built a temporary bridge over Sand Creek this morning which will allow automobiles to cross.

"The soil contains so much moisture that we have been unable to do much of our field work. Dr. Boswell, Dr. Zaumeyer and Dr. Wade arrived on Tuesday. Wednesday morning Dr. Boswell accompanied me to Estes Park where I planted the potato breeding plots and many of our seedlings. In the afternoon we went to Fort Collins where we were joined by Dr. Wade and Dr. Zaumeyer. The four of us called on Director Sandsten and later inspected the horticultural field plots. Dr. Boswell left Wednesday night for the East.

"Sugar beets are growing rapidly since the rains started, and it is now time for thinning, but the fields are too wet to be worked. It is now time for planting the late crop of potatoes, too, but planting will be much delayed on account of the wet condition of the soil. All reservoirs are being filled as rapidly as possible. It is too early to state how much water will be stored, but there is a good indication of a fair run of reservoir water."

C. F. Clark, Presque Isle, Me.

"During the past few days we have made good progress in planting the experiment plots," he writes May 25th. "We were not able to start planting this season until somewhat later than usual because of unfavorable soil conditions as the result of a long period of cold, cloudy weather which did not permit the soil to dry out sufficiently for fitting.

"The planting in the commercial fields is well under way. No definite reports are yet available regarding the acreage which will be planted this year but it is the general opinion that only a slight reduction will be made.

"The potato market is very dull with the prevailing price about 25 cents per barrel. There are still several thousand carloads of excellent table stock in the county."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Technical Bulletin 475, "Influence of storage temperature and humidity on keeping qualities of onions and onion sets," by R. C. Wright, J. I. Lauritzen and T. M. Whiteman, just issued, describes and discusses investigations under taken to determine the physiological and pathological reactions of onions and onion sets stored under different controlled temperature and humidity conditions.

Onions represent, of course, one of the most important vegetable crops that are stored extensively during the fall and winter seasons. However, while onions are grown in many of the Southern States the varieties produced are not usually suitable for storage purposes. They are as a rule marketed for consumption immediately. On the other hand, the late varieties grown in the North and maturing in September and October may be stored successfully for considerable periods of time.

Perhaps three-fourths of the commercial-storage onions are held in common storage in the particular sections in which they are grown. "Common storage" refers to the storage of products in suitably insulated buildings in which the temperature is largely governed by weather conditions but where extremes of temperature can usually be modified by manipulation of the ventilating system. By judicious management the winter supply of northern-grown onions can usually be kept under such conditions until about the first of March. For satisfactory holding after this, onions must be placed in cold storage, as a rule.

In order to study the influence of different temperature and humidity conditions on keeping quality, onions and onion sets of several varieties were stored for various period at temperatures of 32°, 40° and 50° F., with low, medium, and high humidities at each temperature. Periodic inspections were made, and all specimens showing sprouting or top growth, rooting, and decay were recorded and discarded.

In general, the amount of sprouting in stored onions was influenced little by the humidity, but increased with an increase in the temperature, whereas rooting increased with humidity and was little influenced by temperature. The amount of decay appeared to show only a general slight tendency to increase as both temperatures and humidities increased, but this was not marked. Most of the decay was identified as neck rot.

Onion sets showed an increase in sprouting, rooting, and decay as the storage temperatures increased and as humidities increased at each storage temperature. For keeping both onions and onion sets in a sound dormant state the best storage conditions were found to be 32° F. and a low relative humidity of about 64 percent. The varieties studied included the Ohio Yellow Globe, Southport White Globe, Valencia or Denia, Bermuda, and three varieties of sets--Yellow Strasburg, White Portugal and Red Wethersfield.

FERMENTATION AND BACTERIOLOGICAL STUDIES

J. A. Berry, Seattle, Wash.

"Some good Maraschino cherries of the right size have been prepared in the Laboratory from the seedling material mentioned in previous reports," he writes May 18th. "It might prove worth while to do grafting of this cherry on a commercial scale. One big outfit in Seattle is contemplating manufacturing Maraschino cherries again, and I think our 'find' is better for the purpose than the Royal Anne, which really is far too big. The seedlings came from Buena, eastern Washington.

"We are finishing work on our 1934 berry packs. We have found that our strawberries, raspberries and blackberries after several months' storage have a good long life when kept under ordinary household refrigeration. They will stay fresh and nice not merely for a few days but literally for weeks. Even when kept at 70° F. they will show no microbial activity for many days if the container is airtight.

"After a rainy spell, the weather has turned warm and dry and the strawberry harvest is almost on us. We are watching with interest a large planting of Corvallis berries on Vashon Island. Barring some crinkle disease, not of serious importance, the plants seem very forward and thrifty. The Corvallis seems to be a very good variety for freezing, and its bright color should commend it to the preserving trade."

In the May 15th issued of the NEWS LETTER we mentioned an interesting and important development in the application of freezing to food preservation, referred to by Mr. Berry. This is the rising popularity of individual lockers in cold storage plants. These lockers, of about 15 cubic feet capacity are rented at $10 or less per year--not per month, as we inadvertently stated--and are taken over by individuals for storing meat, fruit and vegetables. Customers are finding freezing preservation labor-saving and quite satisfactory.

Refrigerated Lockers, etc.

The May issue of the Ice Cream Review contains an article on such lockers in which, commenting on his personal experience with the system, an official of a large ice cream company in Iowa reports that his company rearranged its plant and constructed two new cork-insulated rooms 20x9 feet with 9-1/2 foot ceiling. In one of these rooms products are prepared for storage and a temperature of 30 degrees is maintained. The other is the locker room, kept at 18 to 22 degrees. The lockers in this case are 16 inches by 16 inches by 3 feet long, completely filling each side of the room, with a 30-inch aisle from front to rear. There are 70 lockers on each side, available to the person holding the keys at any time the factory is open.

COLD STORAGE LOCKERS NEW WAY TO KEEP FRUITS AND VEGETABLES

A young police officer was being shown over his new night beat. "Do you see that red light in the distance?" asked the sergeant. "Well, that's the limit of your beat. Get along and keep your eyes open." The young officer left. Two weeks later he showed up at the station house for the first time since going on duty that night. "Where have you been all this time?" demanded the sergeant, angrily. "You remember that red light you pointed out as the limit of my beat?" asked the recruit. "Sure," agreed the sergeant. "What of it?" The young officer sank down wearily on a nearby bench. "Why," he explained, "that was the tail light of a moving van bound for Chicago."

What I mean, of course, is that I really didn't need to go off my beat to the Ice Cream Review or any other source--though it is true that the words "ice cream" always exert a come-hither influence over me--to get a true line on this new development in connection with the use of lockers in cold storage plants. The eagled-eyed workers in the Press Service have been looking into the situation for some time and under date of June 3, put out a press release on the subject.

"Individual lockers in cold storage plants is the latest suggestion for keeping fresh fruits, vegetables and meats on hand the year round," it says. "The idea is already in use in many places--particularly in the South and West--but could be more widely adapted to the mutual benefit of both cold storage operators and householders." The lockers, of heavy wire screen so that cold air may circulate freely, are kept at a temperature of around zero (F.) or 5 above, temperatures referred to as "freezing storage." They preserve the quality of stored products and prevent rapid increase of spoilage organisms. Each locker opens to its own key and is accessible at all times to the renter. The rent usually amounts to only a few cents a day. Most cold storage houses, ice companies and ice cream factories do not use their cold storage machinery to capacity, so they can add to their profits, as many are doing, by building and renting lockers in a cold storage room. The plan is of special use to farmers and others who produce their own fruit and vegetables, or to those who want to lay in supplies when they are plentiful and cheap.

"Some of the common vegetables which have proved adaptable to freezing storage are peas, string beans, lima beans, broccoli, cauliflower and sweet corn....Berries, cherries, apricots, peach and plums may be stored either with or without sugar, but preferably in a syrup...Promptness in storing packaged products at freezing temperatures cannot be overemphasized. Also, only products of good quality should go into freezing storage. Freezing cannot improve the quality of overripe fruits or vegetables....Those who have made use of freezing storage by the individual locker method have found that experimental freezing of untried products on a small scale and by different methods is valuable in determining which methods are suited to individual tastes and which give best results."

NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"Walnut pollination is practically over with," he writes on May 25th. "At Roseburg we found conditions reversed of the normal situation. The Franquettes there were behind the Franquettes in the Willamette valley. They also had practically no catkins when the female flowers began to be first receptive. A great bulk of the flowers will have to depend upon pollination from other trees. Light frosts have occurred so that some of the material in the paper sacks has been killed.

"In the Willamette valley the blooming habits of several varieties this year do not check with other years' records. For instance, an early blooming Meylan in the college orchard is much later than the Franquette, when it normally should be just a trifle later."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

"The prolonged dry period for this area was finally broken on the 7th of May when we had almost 2 inches of rainfall," he writes May 31. "This was followed with almost daily precipitations for about 10 days and at intervals throughout the month. The final precipitation for the month was 7.09 inches which is slightly more than 4 inches above normal. While this amount of rainfall was badly needed on many of our crops, it came somewhat late to be of appreciable benefit on beans and early cucumbers. It probably would have added considerably to the potato crop as a whole had the local growers delayed harvest to the usual time. However, the market on this crop was not favorable and most growers harvested their potatoes from 2 to 3 weeks early, thereby losing on the full crop possibilities. Such crops as late cucumbers and tomatoes have responded to the weather conditions remarkably well and the yields will probably be normal or above.

"Due to the dry weather we have had little damage so far from diseases on beans. Mosaic was somewhat more general this spring than usual, although not severe enough to cause material damage. Rhizoctonia on potatoes was general and caused considerable losses on some farms. Mildew on cucumbers began development somewhat late but spread rapidly once started. The Kingstree section reports heavy losses from this disease during the last two weeks. On experimental plots here at Charleston we have had no trouble in controlling the disease. Sclerotium rolfsii is causing considerable trouble at present in the tomato fields, principally in the role of fruit rots where the tomatoes are in contact with the soil."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Arkansas

"It has rained some time during the day or night of every day this week," he reported for the week ending May 18th, "and the apple scab fungus is flourishing under the exceptionally favorable conditions. I have received specimens during the week of Ben Davis, Delicious, Stayman, Jonathan, Winesap and Maiden Blush leaves and fruit all showing abundant scab lesions. The very favorable environmental conditions, coupled with the fact that many growers omitted the cluster bud spray, will probably make the 1935 season an outstanding one as far as apple scab is concerned.

"I have just returned from a conference with a grower near Fayetteville who applied the cluster bud spray and subsequent sprays to a portion of his orchard--omitting the cluster bud from the balance. Scab lesions are fairly prevalent in the sprayed portion of the orchard, but the trees look vastly better than the portion where the cluster bud spray was omitted. In this portion of the orchard many of the trees have practically every leaf affected and the fungus appears to have checked the growth of the trees, the leaves are small, and the shoot growth short. I doubt if he harvests any A-1 fruit from this portion of his orchard. The Jonathan variety was most seriously injured. He stated that since there had been no scab in the Jonathan block for several years he decided to 'take a chance' this season on a portion of his plantings.

"The rains have interfered with strawberry picking and have lowered the grade of the berries picked. The growers estimate that the picking season will continue another two weeks."

Writing on May 25th he said: "On Monday, May 20, a grower from Bentonville brought in specimens of Early Richmond cherries with small brown spots on the fruit. Microspcopic examination revealed the presence of the leaf spot fungus, Coccomyces hiemalis, in the fruit tissue. Additional specimens of the leaf spot fungus attacking the fruit were collected at the University of Arkansas farm on May 23. In this second collection the variety Ostheim was affected. The cherry leaf spot fungus, in addition to attacking the fruit, is very prevalent on the foliage and at the University of Arkansas farm the susceptible varieties such as English Morello and Wragg, are so severely defoliated that they probably will not mature much of a crop....

"The examination of apple drops from the 1935 spray experiment has been one of the major tasks of the week ending May 25th. This first collection of drops shows the scab fungus to be very prevalent in the non-sprayed check plots, practically absent in the lime sulphur plots, and somewhat more prevalent in the copper phosphate plots."

FRUIT PRODUCTION

Elmer Snyder, Fresno, Calif.

"A number of Panariti vineyards were planted this spring," he reports for the May 13-18 period. "The acreage can still be increased before sufficient quantity of currants are produced to fill the demand. The dried currants for the past five years have been netting the growers between 6 and 7 cents per pound. A yield of 1 ton dry per acre can easily be obtained, while 1-1/2 to 2 tons have been reported. A considerable acreage of Sultanina will be ringed this season for table grape purposes. One shipper reported that it was almost impossible to sell the Sultanina for table grapes unless the vines were ringed."

Writing May 11th he had reported: "Vinifera grape varieties are starting to blossom in the Kern County section of the San Joaquin Valley. The Panariti, the zante currant grape, started to blossom at Shafter on May 7th, about a week later than the average season. This variety was ringed on May 10th. The Sultanina, Muscat Hamburg, Gros Guillaume, and Mervaille de Malaga were also in blossom at this time. Vinifera varieties will not blossom at the Fresno station until the latter part of the coming week. Stock varieties have been in bloom for sometime. The extent of the blossoming period covering different species has been from April 22 to May 11th with a few varieties still not in blossom. Some hybridizing work was done this season with the stock varieties."

Writing on May 25th, he reported: "During the week just past the major portion of the time was spent on the grape breeding work. This season the grape blossoming dates at Fresno were slightly later than normal. The vinifera varieties bloom over a relatively short period, necessitating rather rapid work during the blooming period to cover the crosses desired. This season 11,419 blossoms were emasculated and 22 crosses made...

DISEASES OF NUTS

Paul W. Miller, Corvallis, Oregon

"The week ending May 18th," he writes,""was spent largely in supervising the application of spray and dust treatments for the control of walnut blight.... Spray burn on young foliage is already evident in some of the plots sprayed with bordeaux mixture alone. The weaker bordeaux mixtures such as 1-1/2 - 1-1/2 - 50 and 2 - 2 - 50 formulae seemed to have caused almost as much leaf burn as the stronger 4 - 4 - 50 formula. However, the addition of summer oil emulsion (1/2 gallon to 100), a light medium spray oil (1/2 gallon to 100) and herring oil (1 pint to 100), respectively, to bordeaux mixture reduced the amount of leaf burn to an insignificant amount. Up to the present no leaf burn is detectable in the plot sprayed with curpous oxide 1 pound to 50, basic copper sulphate 1 pound to 50, and copper silicate 2-1/2 pounds to 50."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"About May 15, it was evident that a large number of the small fruits of the Anjou variety had ceased enlargement," he writes May 20th. "During the past week these fruits began to loosen and fall. Although this drop of Anjou fruits is going to be heavy in this district, field men here still are of the opinion that the 1935 Anjou crop will be larger than the light 1934 crop, which was 345,669 boxes. The Hood River district had optimum weather conditions for pear pollination, and reports young and old trees to have set a very heavy crop, which might produce as much as 500,000 packed boxes. The Yakima district estimates 200,000 boxes of Anjous.

"After obtaining root samples for chemical analysis from one series of pruning plots, the S. E. R. A. crew spent 4 days determining root concentrations for the Salem clay loam soil at the Scherer Orchard. In the top 3 feet of soil, which was high in sedimentary clay, root concentration varies from 2 to 4 grams per cubic foot. However, in the wet sand just above the permanent water table at a depth of 5 feet, root concentrations were much higher. Root concentrations for a large Anjou tree were greater than for a smaller Bartlett tree of the same age.

"Dr. V. R. Boswell visited our experimental plots on Saturday morning. In the afternoon I turned olericulturist while Dr. Boswell examined Mr. Otto Bohnert's 100 acres of rhubarb, cantaloup, watermelon, lettuce, onions and tomatoes. Dr. Boswell found the light, sandy vegetable soil a very pleasant contrast to the clay adobe pear soil."

ADMINISTRATIVE NOTES

Bids There are still occasional complaints from dealers that not sufficient time is allowed between the asking for bids and the opening date to permit them to submit satisfactory quotations. Mr. Allanson has just sent us copy of a memorandum from Mr. W. A. Jump, Director of Finance for the Department, emphasizing the need that all members of our staff who have occasion to make purchases involving bids remember that care must be taken to allow sufficient time to insure the widest possible competition.

It is realized that in cases of emergency the time must be shortened somewhat, but emergency cases must be held to a minimum and purchasing and contracting employees must anticipate requirements in every possible way if we are to avoid deserved criticism--and if we are to accomplish our purchasing to the best price advantage of the Government.

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OUTSIDE PUBLICATION

Our workers are, of course, permitted to prepare articles for outside publication, to deliver talks to meetings or over the radio, etc. but where the material to be used treats in any way of the work of policies of the Department it must be submitted for approval prior to use. This is necessary not alone to insure so far as possible the accuracy of the statements made, but to make sure that the Department is not used for advertising purposes and that our employees do not permit their names to be used in advertising matter (printed, radio, etc.) issued by organizations commercializing any of the work conducted by the Department, irrespective of any merits which the enterprise may possess. We want to make sure that nothing we do as individuals or as a Division will embarrass the Department in any way.

While approval must be secured in advance of use, there is no objection to preliminary discussions with publishers or others. In fact, when approval is requested, we prefer to have the author state in what publication the material is to be used, the compensation, etc. Send us the original and one carbon copy of the material (and we can use a second carbon for our files, if one is available). The original makes it a good bit easier for the editorial workers who have to review the material, and it will be returned with the approval and any notations or comments that appear desirable. The carbon copy is retained for the Department's files. Sometimes only carbon copies are sent us and these so difficult to read that we have to have new sets typed or return the material to the author for new copies. So, please be sure to send at least the original and one carbon copy with your request for approval of outside publication.

Material for radio talks, lectures, etc. comes under the same heading as material for publication in outside journals, and must have prior approval where it treats in any way of our work or policies. It is desirable, too, to secure prior approval for talks which may not treat of our work or policies but may be made during official hours--at schools, meetings, etc.

Every approval of material for outside use bears the statement that the Bureau library should be notified when the paper is actually published, and where, so that the article may be indexed and noted in the Agricultural Library Notes. If reprints are issued, or if the article is published in a journal not in the Department Library, a copy should be furnished for the Library's files. I suppose it is modesty, but it is surprising how few authors send in such copies or reprints. It is not too late now, if your conscience troubles you, to send to Mr. Gilbert reprints or copies of journals containing articles which you have published outside of the Department. He will see that they reach the Library for attention, indexing and filing.

ADMINISTRATIVE NOTES

Typewriter Ribbons — Take a look at some of the work being done by your typewriter (the machine, that is) and if it is quite dim or faint, please ask the typist (human) to put on a new ribbon(on the machine). This request is made because we have been getting some payrolls, for example, on which the typing is so faint that it is practically illegible. Frequently we have to copy such payrolls, as the Treasury Department insists upon having clear typewritten copies from which to prepare checks.

Too, while on the subject of typewriters (machines), we have another important request to make: In the continual shifting of our various units during the past few years, we have lost track of the present location of some of our machines. It will help a lot if you will check up on yours and let Mr. Gillette know promptly if you have any of the following:

L. C. SMITH: Nos. 10667448, 1000487, 497224, 812565, 919,218
UNDERWOOD: 1538446, 2031825, 752694, 993366, 990795, 1064129, 2093088 and 2089632

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Salary Checks — We have been receiving complaints about the time consumed between the forwarding of the notice "on duty" and the receipt of salary checks. Every effort has been and is being made to shorten this period as much as possible. With few exceptions payrolls are forwarded to the Bureau's accounting office the same day the notice is received in our Business Office. It takes something less than two days as a rule for the vouchers to make their way through the necessary checking and auditing to the Treasury Department. The time required under present conditions for the writing and mailing of checks from the Treasury Department runs from 4 to 6 days. Add to this elapsed time the time required for mailing back and forth from your station, and you will understand our problem and be able to figure out just about when the check is to be expected.

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Profit by the other fellow's mistakes--

Be sure and use transportation requests for ferry charges.
When sending telegrams pause long enough to obtain Government rate.
In purchasing railroad ticket, get a roundtrip ticket -- if you are making a return trip.
When obtaining Pullman accommodations, always secure the "through" rate.

If you are a field station executive, employing temporary or periodic labor, make sure that you do not pay such assistants a higher rate than they were paid for previous work--unless there is a clear change of duties. An explanatory note must be sent with the voucher to show change in duties and justify increase in pay.

Vol. 7, No. 12 June 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY
UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., July 1, 1935 No. 13

100 Percent Dividends. I remember reading somewhere of a man who had received investment literature guaranteeing him a 25 percent return on his money. "Yes," he wrote; "but what becomes of the other 75 percent of my money?" Most of us could answer that question--a few from personal experience. I am going to let one of our friends tell you of another investment returning not 25 percent, but 100 percent or more each year.

Technical Bulletin No. 434, "Refrigerated transportation of Bartlett pears from the Pacific northwest," by E. D. Mallison and C. L. Powell, issued in 1934, told of investigations conducted during the 1928-1931 period to determine (1) the feasibility of increasing the size of the load when precooled pears are shipped, (2) the effect of different methods of loading, and (3) the most efficient method of applying salt for refrigeration during transit. It is of the first phase of the investigations that we are going to speak.

It was found that precooled pears shipped in 720-box loads arrived at the market in a firm condition and were as suitable for storage as those shipped in 520-box loads. Under the title "A more economical method of shipping precooled pears," Mr. Mallison reviewed this work at the Thirtieth Regular Meeting of the Pacific Northwest Advisory Board (Advisory to the Association of American Railroads) at Portland, Oreg., March 22, 1935. I have just received the printed proceedings, giving in full Capt. Shelby M. Tuttle's discussion of Mr. Mallison's paper, and his comments on the savings effected by the heavier loading of pears. Captain Tuttle is manager of Southern Oregon Sales, Inc., the principal cooperative in the Medford district.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

"Mr. Mallison has mentioned briefly the saving as being from 11.6 to 14.8 cents per box," he said. "This was the condition at the time the tests terminated, but since that time even further savings have been made due to the smaller amount of ice required by the heavy cold load. Very few cars of precooled late pears now carry Standard Refrigeration--practically all fall shipments being either under Rule 247 or 240, while the majority of the East Bound Anjous are shipped without ice during the winter. This means a saving of from 20 to 30 cents per box, which in many cases, during the last few years, has been a grower's only net income above production expense. Considering only the Medford District, the net savings to growers effected by the heavier loading in a normal year amounts to approximately $250,000.00.

"Were the savings limited to the above, they would be very considerable and well worth while. However, the results of the heavier loading have been much farther reaching than any of us hoped when the movement was first attempted. Starting with the premise that the heavy load can only be used with precooled fruit, it readily becomes apparent that a lower per box transportation cost immediately puts a premium on precooling, in addition to the advantage of the better keeping and dessert qualities afforded by its use.

"Precooling in the Medford District requires a very heavy compressor capacity tonnage ratio due to high field temperatures at harvest time. Since this machinery constitutes a large portion of the investment in a precooling plant, it is only natural that provisions should be made for its utilization for storage during the balance of the season. This has been done with the result that shipments no longer reach a sharp peak during packing season, but now extend over a nine-month range. As an example of this effect I wish to compare shipments from the Medford District for the years 1928 to 1934. In 1928, 89 percent of all pears were shipped in the first two months of the shipping season; 95 percent shipped in the first three months. In 1934, 40 percent was shipped the first two months and 55 percent in the first three. The daily range was even more pronounced. In 1928, on five days the shipments exceed 100 cars, the peak being 136. In 1934, the peak movement for one day was 50 cars, all other daily shipments being 40 or less. This means a tremendous saving to car lines and carriers as the same crop may now be handled with less than half of the rolling stock formerly required, and an attendant reduction in switching and yard storage congestion. The improved condition of the fruit is reflected in a remarkable reduction in damage claims on pears which were formerly regarded as a very perishable product. The reports of 46 class I lines, representing 81.2 percent of all carload perishable traffice, to the Freight Claims Division of the A. R. A. for 1932 show the claims per car to be less on pears than on apples, while 1933 records show them to be practically identical.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

"Mr. Mallison mentions briefly the advantage to carriers resulting from heavier loading. The actual additional revenue from the heavy car at an 18 cent lower rate is $110.36 due to the 38-1/2 percent increase in the net loading. The question that often arises is that since railroads are carrying tremendous car and locomotive surpluses, why discuss heavier loading? The answer is, that the mere utilization of equipment without profit is of no more advantage to the carriers than it is to any other line of business.

"This particular phase of the question was rather aptly covered by Mr. M. J. Gormley, Chairman, Car Service Division, American Railway Association, in an address before the Western Railway Club of Chicago in February, 1929, where he made the following statement: "Based on the theory that the revenue on every additional pound of freight, up to a reasonable limit, loaded into a car over and above its previous loading is all net to the railroad, we believe it would mean $100,000,000 per year increase in net revenues for the carriers as a whole if the average tonnage per car was increased by 2,000 pounds. This theoretical conclusion can be justified in a great many ways; certainly any additional cost that might be chargeable to the handling of the additional ton is many times offset by the savings resulting from the decrease in loaded and empty mileage, switching, office work, etc.' In the utilization of the 720-box pear load the shippers have increased the net loading by not one ton as suggested by Mr. Gormley, but by five tons."

Captain Tuttle went on to speak of what he considers the best pear load--a 744-box through load in which the fruit is loaded on end, eight wide and three high, without break or bracing, this being simply a modification of the citrus load which is universally used. While the net lading is still heavier than the 720-box load of course, Mr. Mallison found in his tests that this method showed a rate of softening of the experimental fruit in the top layer comparable with that from the bottom layer of the 520-box divided load, both precooled. No damage to the fruit could be detected except in the case of some experimental boxes where the pads were reversed.

"The greatest interest of the shipper in this load aside from its excellent carrying qualities," Captain Tuttle pointed out,"is the very worth while saving in bracing. Regarding the labor in each case as the same, the material costs amount to about $2.75 per car, or applied to the year movement from the Medford District only, a saving of some $8,000.00 per year....

"In conclusion, the 720-box pear load has effected a saving to growers that has been largely instrumental in enabling many of them to remain in business during the past few years, another large saving has resulted to the carriers from its use, both in larger net returns per car, and in material reduction in damage claims...."

Thank you, Captain Tuttle!

FRUIT AND VEGETABLE HANDLING TRANSPORTATION AND STORAGE INVESTIGATIONS.

C. O. Bratley, New York City.

Writing on June 12th, he reports: "Early in May of last summer a refrigerated cargo of New Zealand apples was discharged at Halifax and six car-lots were transshipped to New York City. The selling price for these was disappointing and the receivers stated that they intended to handle no more. However, on May 26 of this year the SS TURKAKINA direct from New Zealand docked in Brooklyn and dischared from her 25° F. hold 20,000 boxes of apples. About two-thirds of the cargo originated at Wellington, N. Z., the remainder at Point Nelson, N. Z. It is expected that the fruit will be sold gradually until California Gravensteins appear on the market. At present it is being held in the Harborside Cold Storage in Jersey City at a temperature of 32° F. Jonathans constituted about two-thirds of the shipment, Delicious one-fourth, and Rome, Sturmer and Statesman the remainder.

New Zealand Apples in New York City.

"The quality of the Jonathan, Delicious and Rome apples was inferior to that of domestic fruit of the same grade, the New Zealand extra fancy being comparable to our fancy grade. This was due to the quantity of mis-shaped and poorly colored fruit in the packs.

"The receivers, J. & H. Goodwin, are said to be satisfied with the condition of the fruit. However, the Jonathans ranged in maturity from firm-ripe to ripe with one percent internal breakdown, 5 percent soft scal, 3 percent Jonathan spot and 1 percent total decay of gray mold and blue mold rots.

"The average selling prices for best fruit in the first four cars sold on the auction were disappointing. They were as follows: Jonathan, $2.03; Delicious, $2.50; Sturmer, $1.75; and Statesman, $1.75."

APPLES IN STORAGE

Paul L. Harding of the section of Fruit and Vegetable Handling, Transportation and Storage Investigations, is the author of "Physiological Behavior of Grimes Golden Apples in Storage," just issued as Research Bulletin No. 182, of the Iowa Agricultural Experiment Station. (April, 1935.)

This publication is taken from a thesis submitted by Dr. Harding to the Graduate Faculty of Iowa State College in partial fulfilment of the requirements for the degree of doctor of philosophy.

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FRUIT PRODUCTION

A. D. Shamel, Riverside, Calif.

"The manager of the Riverside branch of the California Fruit Growers' Exchange told me yesterday that the average return for the crop of the present season to the Navel orange growers in this district who are members of that organization will probably amount to 1-1/2 cents per pound. This is considered to be a more favorable outcome of the Navel orange deal than was thought possible at the beginning of the picking season last winter.

"The Valencia crop is the heaviest one in the history of the industry for this district, and is quite generally the case, I think, throughout the Valencia orange districts of the State as a whole. Harvest began as soon as the Navel orange picking had been finished. Valencia shipments from central California have been quite heavy and returns better than were anticipated, I am told by some of the growers who visited us recently."

W. T. Aldrich, Medford, Oreg.

"Five days during the week were devoted to root concentration determinations," he writes May 27th. "At the Scherer orchard we excavated one trench extending from a Bartlett to an Anjou tree. In the top three feet, consisting principally of river deposited clay loam, root concentrations varied from two to four grams per cubic foot. In the more sandy subsoil just above the permanent water table, root concentrations went from two grams per cubic in the middles to 13 grams near the trunk.

"For one trench for one Anjou tree in Sams Loam at the Van Hoevenberg orchard, concentrations in the top three feet were about the same--three to four grams per cubic foot. I had expected higher concentrations in this soil, which is considered extremely fertile. Since these trees receive only winter irrigation, it is possible that late summer and fall dryness may seriously reduce fall root development.

"In the E. W. Carlton orchard in Salem fine sandy loam, with large gravel and coarse sand below two feet, Anjou pear root concentration varied from five to eight grams per cubic foot, whereas Winesap apple root concentrations varied from five to thirteen grams per cubic foot. The larger concentrations for apple than for pear roots may be due to the larger size of the apple tree examined. I shall caluclate root concentration for a given cross-sectional area of scaffold limbs for all trees examined, in order to make root concentrations more nearly comparable."

STRAWBERRIES IN NORTH CAROLINA

G. A. Meckstroth, Chadbourne, N. C.

"The 1935 season was the first good year since 1931" he writes from the U. S. Strawberry Disease Field Laboratory. "The returns for the last three years have been rather discouraging. Figures released by the Secretary of the Chadbourn Marketing Company on May 20, 1935, show that 150,124 crates of 32 quarts capacity each were sold this season in the Chadbourn market, bringing $500,370.00.

"Carlot shipments from April 15 to May 15 from North Carolina totalled 771 cars, compared with 306 for the entire season of 1934. The truck movement for the same period from the State accounted for 348,283 crates or equivalent to 1,514 cars, compared with 238,155 (or 1,036 cars) for the entire season of 1934. The peak movement from North Carolina was reached on April 29th, when 66 cars moved by rail and 28,837 crates (approximately 125 cars) by truck.

"The price of strawberries held up well throughout the season. With the end of the season in sight, the price still ranges from $2.10 to $2.40 per crate. Some of the growers have been selling their culls at $1.00 per crate (the crate and cups are returned to them) for juice. It is believed that this season's prices will give strawberry growers encouragement to increase their acreage this fall.

"This year the strawberry season at Chadbourn opened up several weeks earlier than usual, and proved to be a longer shipping season than we have had for the past several years. Early indications pointed to a very large yield, but this was cut down by a number of factors, one of which was the lack of rainfall from April 22 to May 8. Foliage diseases in some fields also caused a reduction in yields."

NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"During the week the trenching and root study work has been carried on steadily," he reports for the June 3-8 period. "In one filbert orchard it was necessary to go down 11-1/2 feet to reach the lower limits of the root system.

"The weather continues unusually dry and we have had one very warm spell this week. Much of the country is beginning to show signs of drought."

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NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The bacterial blight disease of filberts is now evident on current growth in a number of Willamette valley filbert orchards," he reports June 1. "Some trees are so badly infected that only the terminal shoots of current growth are still alive, most of the lateral buds and shoots having succumbed to blight infection.

"Weather statistics recently released by Edward L. Wells, meteorologist, show that the May precipitation in Oregon has been extremely light, amounting to only .43 of an inch at Portland, Oreg., or about 19 percent of the normal 2.19 inches. According to C. J. Buck, regional forester, this is the dryest May in Oregon since 1890."

He had written May 25th: "Preliminary results of spraying tests carried on for the control of the bacterial blight disease of filberts were taken during the week ending May 25, 1935. Trials carried on in a young Barcelona filbert orchard near Newberg, Oreg. showed a significant diminution in the number of current shoot infections which has apparently resulted from spraying with bordeaux mixture 4-4-50. The best results were secured where one fall and two early spring treatments of bordeaux mixture were applied to the trees.

"Apparently a fall treatment applied prior to the occurrence of the fall rains, as well as several spring applications, is necessary for the best control of blight. There are apparently two important natural blight infection periods, namely during the fall rains and during rainy periods which occur in the early seasonal development of the plant. Tentative verification of this contention has been secured by the results of our preliminary inoculation studies. To secure maximum protection from bacterial blight infection, therefore, it appears to be necessary to spray at least once during the fall before the fall rains occur and at least twice during the early seasonal development of the plant.

"Studies on the cause of prune scab were also carried on during the week. Attempts made to isolate a parasitic micro-organism from typical 'scabby' spots on prunes have so far been attended with negative results. Histological sections made through typical blemishes have likewise failed to disclose any signs of a parasite. It would appear, therefore, from studies carried on to date that prune scab is not of parasitic origin. Prunes under bags which have been protected from rubbing and from thrips show no evidence of 'scab'. Fruit in sacks in which thrips were placed contain small corky raised areas seldom more than 2 mm in their maximal diameter dimensions. However, typical scabby spots have so far failed to develop on fruit infested with thrips."

NUT PRODUCTION AND DISEASES

B. G. Sitton, Shreveport, La.

Writing from the U. S. Pecan Field Station on June 8, he reports on a trip made to Winona, Tex. to check on rosette experiments in the Combination Orchard, and to plan for irrigation work for the coming season.

"On rosetted trees treated during the past winter by placing dry zinc sulphate in holes in the trunks of the trees," he says, "where the rate of application was 0.5 to 1 mole per square foot of cross sectional area of the tree trunk, the foliage is apparently normal at the present time. Where metallic zinc in the form of glazing points were driven into the branches, using the same amount of zinc (0.5 to 1 mole), only one tree showed any improvement and that was rather slight.

"Trees treated about a year ago with zinc sulphate at the higher rates of injection were much benefitted last summer and have practically normal foliage this year. However, where the rate was less than 0.5 mole per sq. ft. the foliage is somewhat crinkled and chlorotic this year.

"Trees treated two years ago at the low rate have reverted to a rosetted condition about as bad as before treatment. No treatment at the higher rates were made that year.

"The block of Delmas trees in which an irrigation plot was located last year have a very light crop this year, and the crop seems to be lighter on those trees which were irrigated. These trees had a heavy crop last year and apparently were unable to store enough food reserves to set a crop this year. It is advisable to omit the irrigation this year as the trees will probably mature the crop without irrigation."

John R. Cole, Albany, Ga.

"On Thursday, June 6, we made the third application of zinc sulphate spray (2-50) on the Stuart variety at DeWitte," he writes from the U. S. Pecan Disease Field Laboratory on June 8.

"The trees have made a remarkable recovery from the rosette disease, due to the two previous applications of 1-50 zinc sulphate.

"We are also making observations on trees that were sprayed three times by Messrs. Demaree and Large last season, that were greatly benefitted by the zinc sprays. However, this season they are showing traces of the rosette disease."

YEARS SAVED IN PRODUCING DISEASE-RESISTANT PLANTS

Under the above title the Press Service sent out on June 16 an outline of the amazing progress being made in speeding up emergency plant breeding projects.

"To satisfy the urgent and often frantic demands of canners and seedsmen for vegetables resistant to disease--but of good quality--Federal plant breeders are developing new varieties in about one-third the usual time by growing several generations in 1 year. Wilt-resistant peas and mosaic-tolerant beans are examples," it says, having in mind the work being done by B. L. Wade and W. J. Zaumeyer of our Division.

"In 1934 investigators in the United States Department of Agriculture were able to produce 4 generations of beans--3 in the greenhouse and 1 in the field, and 4 generations of peas--1 in the greenhouse and 3 in the field.

"Ordinarily 15 to 20 generations are needed to produce a resistant variety, fix the type and increase it to where there is seed enough for commercial distribution. With only one generation a year, growers in distress because of an invasion of disease may be forced to abandon certain lands or the crop itself before the plant breeder can give aid.

"To develop pure strains of quality, it usually is necessary to cross with less desirable--but resistant--types, and then make repeated selections for 7 to 12 generations. Most of this can be done in the greenhouse until the production of seed in quantities begins.

"Rapid increase of the seed outdoors may be done in a number of interesting ways. Growing seed crops south of the Equator during the northern winters is theoretically the best, but high costs, long sea voyages, and local unfamiliarity with American varieties are drawbacks. American peas have been successfully grown in New Zealand, and growing off-season crops in Argentina or other southern countries has been investigated.

"Three generations of peas can even be grown in North America in one year, by harvesting in Mexico in March, in California in June and in Colorado in time for planting in Mexico in November.

"The problem of growing and harvesting more than one generation of beans a year without greenhouse conditions, is more difficult, as they are sensitive to low temperatures. If some frost protection is provided in the extreme south, it is probable that beans could be harvested there in time for June or July planting in States to the north."

FRUIT DISEASES

H. F. Bergman, Amherst, Mass.

Writing from the Cranberry Disease Field Laboratory at East Wareham, Mass. on June 1, he says: "Some chlorophyll extractions were made of cranberry leaves from two bogs, from one of which the winter flood was let off late in March, and from the other about May 25. These bogs were selected in order to compare the chlorophyll content of leaves which had been kept under water with those which had been under normal conditions during the spring. The leaves of vines on the late-flooded bog had a somewhat lower chlorophyll content, but not markedly less than the others.

"Sclerotinia has developed quite badly on some of the blueberries during the past week. The June variety is affected the worst. Some new hybrid seedlings are also badly infected."

He had written earlier that the work on the bogs the latter part of May was made impossible because of the unseasonably cold weather which led to the need for flooding the bogs nearly every night so that they were kept too wet to work on. He did measure and tag some terminal buds for study of the effect of flooding on development of flowers and fruit. Some measurements of oxygen content of flooding water were made also to determine daily variations in the oxygen content.

"The daily recurrence of frost this week," he had written May 25, "is very unusual and had many of the growers worried for fear that they would not have water enough for further flooding in case frosts continued for a few more nights. Some ponds were lowered a foot or more during the week."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wy.

"One of the heaviest rainfalls in some years fell from 11 p.m. to midnight June 10, with some hail, traces of which were still visible the following morning," he reports June 15. "The storm was general and did considerable damage to highway and railroad grades. The tulips were pretty well flattened out and some damage was done at the station to the tomato, cabbage and other plants set the preceding week... The Cheyenne Weather Bureau reports the past May as one of the wettest and coldest in its history, with a total precipitation of 5.9 inches, 3.46 inches above normal. Average temperature for May was 44.6, the previous record being 43 for May, 1917."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Arkansas

"The rainy weather continues and the conditions are still favorable for the development of fruit diseases," he reports for the week ending June 15. "Reports received from the Nashville section indicate that peach brown rot has appeared on the Early Wheeler and Early Rose varieties, which are being harvested. Mr. G. Arnstein, Extension Horticulturist of the University of Arkansas, reports the fruit rot present in all the orchards he examined during the past week, but says that in no case had the rot caused any serious damage. Market reports indicate that Arkansas peaches are showing brown rot on arrival at St. Louis, Kansas City and Chicago.

"The cool weather has delayed the appearance of the bacterial spot disease but specimens and reports started to arrive during the week and judging from the number of spots on the leaves, I am of the opinion that the disease will be quite serious this year unless hot, dry weather ensues almost immediately.

"I visited the Kelsey Nursery at St. Joseph, Missouri, during the week in connection with the cherry canker problem. Bacterial lesions were observed on the leaves of Bing, Lambert and Schmidt varieties, and isolation studies are in progress. If Bacterium pruni develops from the leaf spots a considerable portion of the mystery about the source of the cankers on the trunks of the trees will be cleared up. This is the first year I have found bacterial lesions on the leaves of the St. Joseph material."

He had written earlier: "I spent the afternoon of June 5 examining peach nurseries in the vicinity of Bentonville, Arkansas. The Phytophthora disease is very prevalent on the seedlings but the main concern of the nurserymen is the appearance of the disease on budded trees.

"Cankers have developed on the succulent growht developing from buds inserted last fall and one nurseryman estimated that fully 20 percent of his budded peach stock is affected. The disease has not been serious since 1930, and its prevalence this year is clearly correlated with the very rainy weather we have experienced so far this season."

ADMINISTRATIVE NOTE

The Division of Accounts has requested us to ask all travelers to send in transportation requests (carbons) as soon as they are used. No bill from a railroad can be paid until the carbons of all requests charged thereon are received. Thus if the carbons of requests are not sent to Washington promptly, payments are often considerably delayed.

ADMINISTRATIVE NOTES

Surety Bonds. "The Department has been informally advised by the Section of Surety Bonds, Treasury Department, of the inconvenience to that Section and to the Office of the General Counsel, Treasury Department, occasioned by the submission for approval of bonds of indemnity for advances of funds for travel, subsistence and other expenses at the time the application is presented for an advance," states a memorandum dated June 19, from Mr. Jump to chiefs of bureaus and offices.

"The Section of Surety Bonds requests that, whenever possible, the bond of indemnity for an advance of funds be filed with it at least two days before the application for advance is presented, in order that sufficient time may be available for the approval of the bond by that section and the office of the General Counsel, prior to issue of the advance.

"To avoid, or at least, to reduce to a minimum the inconvenience complained of, and to prevent possible delay in the issue of advances with the resultant embarrassment to your traveling personnel, kindly instruct the employees of your bureau accounting office and others concerned, to see to it that the request of the Treasury Department is complied with whenever possible."

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Missing Typewriters. We have had a fair response to our request that you notify us if you have any of the typewriters not definitely located in the recent inventory check, but some still remain unreported. Please have your typewriter machines checked in an effort to locate L. C. SMITH Nos. 10667448, 497224 and 812565; and UNDERWOODS 990795, 1538446, 2031825, 752694, 993366, 1064129, 2093088 and 2089632.

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Telephone and Public Utility Contracts, etc. The Business Office also calls attention to the fact that there are still a number of telephone and public utility contracts as well as short term rental agreements that have not yet been submitted for the fiscal year 1936. Inasmuch as all contracts are expected to be completed and approved by June 30, it is urged that you make a careful survey and forward contracts immediately for such services as you will need during the new fiscal year.

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Vouchers. From time to time the Business Office has urged that reimbursement vouchers be submitted monthly; also that purchase vouchers for supplies be sent in promptly. Now it urges that you follow up all purchases made on letters of authorization and submit all bills or vouchers (as well as reimbursement accounts) as soon after July 1 as possible in order that the accounts for the fiscal year ending June 30, 1935, may be closed. THIS IS IMPORTANT.

ADMINISTRATIVE NOTES

NRA The Supreme Court decision in regard to N. R. A. codes makes it necessary to change the clauses embodied in the specifications for bids. Until further notice all specifications for bids on materials or equipment exceeding $50.00 must include the following paragraphs:

"Bidder hereby warrants that all unmanufactured articles, materials, and supplies offered herein have been mined or produced in the United States, and that all manufactured articles, materials, and supplies offered have been manufactured in the United States wholly from articles, materials, or supplies mined, produced, or manufactured, as the case may be, in the United States, except as stated below: _____."

"Prices bid herein include any Federal tax heretofore imposed by the Congress which is applicable to the material on this bid. If any sales tax, processing tax, adjustment charge, or other taxes or charges are imposed or changed by the Congress after the date set for the opening of this bid and made applicable directly upon the production, manufacture or sale of the supplies covered by this bid, and are payable by the contractor on the articles or supplies herein contracted for, then the prices named in this bid will be increased or decreased accordingly, and any amount due the contractor as a result of such change will be charged to the Government and entered on vouchers (or invoices) as separate items."

"Bids are requested on the basis that if subsequent legislation shall require observance of minimum wages and/or maximum hours of employment and/or limitation as to age of employees, in the performance of Government contracts, any contract entered into shall be subject to modification to accord with such statutory requirements to the extent authorized or required by law."

ANNUAL LEAVE WHEN TRAVELING BY AUTOMOBILE

Where travel is performed in personally-owned automobiles the extra time required over that of rail schedules is charged for as leave at the BEGINNING OF THE TRIP when the employee is traveling AWAY from his headquarters, and at the END OF THE TRIP when RETURNING to his headquarters. For example, where an employee leaves his headquarters for a trip which requires 4 days by auto but only 2 by train, the FIRST 2 days of his journey are charged as leave. On the return trip, the LAST 2 are charged, the official time being allowed for the first 2.

However, while the Bureau's auditing office in its suspension letters designates as leave the extra time required in traveling by personally-owned automobile regardless of whether the period covers Saturday afternoons, Sundays or holidays, the Bureau's time clerk charges as leave only the actual working hours during the period. For example, where the Bureau's auditing office would indicate the leave to be from 11:45 a.m. Friday, July 5, to 8 a.m. Monday, July 8, the actual time charged against the leave records would be 4-1/4 hours on July 5, and 4 hours on July 6.

Vol. 7, No. 13 July 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROP AND DISEASES

S E M I -M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., July 15, 1935 No. 14

Simple but Effective!

Once upon a time there was a man who was kept awake nights by the spirits of his dead friends and relatives, who came and sat upon the fence posts in his yard. Each night, as he looked out from his bedroom window, he could see them sitting there--waiting, waiting, waiting. Naturally he could not sleep. The remedy, suggested by a specialist to whom he took the problem, was absurdly simple. He merely sharpened the tops of the fence posts.

The story does not give the name of the specialist consulted, but it seems quite likely that it was Eddie Gorman. At least, Eddie has suggested a simple and effective remedy for those who have been lying awake nights worrying over the problem of insuring uniformity of interior temperature in cars used for transporting fruits and vegetables. In the Railway Age he discusses one of his inventions--covered by Public Service Patent No. 1935590. This is a wind-driven device for insuring uniformity of temperature in BOTH cooling and heating service. There is a rotor which can be mounted on the top of a refrigerator car or storage house to operate a fan inside. An ingenious arrangement of the fan blades permits operation either for blowing or suction. You simply make plain to the device what is wanted and it goes ahead and heats or cools the car as needed. I was going to say that it has as much intelligence as the average human being, but that won't do--I'm trying to praise it. Anyway, for heater service the fans draw the air from the bunkers and discharge it between the doors; in refrigeration the fan blades are reversed, and pull into the ducts the warm air accumulated in the ceiling, forcing it into the ice bunkers and cooling it before it flows back from the bottom.

Here are the figures for a test in connection with heater service on a trip from the Pacific Northwest:

Outside Temperature Degrees F.		Car Without Fans	Car With Fans
0	Avg. temp. top fruit, prior to lighting heaters	35.2	34.0
0	Avg. temp. bottom fruit " "	30.8	32.0
0	Difference bet. top and bottom fruit temp.	4.4	2.0
-34	Avg. temp. top fruit, 2 charcoal heaters burning	51.5	45.5
-34	Avg. temp. bottom " " "	34.2	37.5
-34	Dif. bet. top and bottom fruit temperatures	17.3	8.0

In a test under refrigeration with the device installed in a car of peaches shipped from Georgia to New York City, the figures were:

93	Avg. fruit temp. at time of loading, deg. F.	90.6	94.2*
100	Avg. temp. top layer, 24 hrs. after loading	55.5	48.7
72	Avg. temp. top layer, 54 hours after loading	46.1	40.6
88	Avg. temp. top layer, 72 hours after loading	43.3	40.5
	Avg. reduction in temp. top layer during trip	45.3	53.7

*Fruit subject to direct sunshine before loading.

The device has been tested under all sorts of weather conditions, the test runs over the northern railroad lines from the Pacific northwest having subjected the apparatus to heavy rains, snow, sleet and outside temperatures below zero for several days at a time, with drops to as low as -37° F., and lower.

A phase of the situation which must have impressed readers of the Railway Age is the fact that if the fans and ducts are installed in the car as regular equipment they could very likely be adapted to use in precooling a warm lading as it comes from the field, thus giving the railroads some of the car precooling business (growing by leaps and bounds), now handled almost entirely by other interests.

"This could be accomplished," the Railway Age article explains, "by using a portable electric motor to revolve the fans inside the car, temporarily attaching the motors to the fan shaft on the outside of the car roof. For this purpose the fan blades should be mounted as for use in heater service. Upon completion of precooling they could be reversed and would then be ready for use in transit. The top bulkhead opening should be covered with a paper mask during precooling and the action of the fans would draw cold air out of the bunkers through the ducts and exhaust it over the lading at the doorway. Upon completion of the process the motors could be detached and replaced with the wind-activated rotors for use en route. No such tests have actually been made in precooling, but the performance of the apparatus under low-powered wind operation warrants a belief that it could be so employed."

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

Writing from the Ozark Fruit Disease Laboratory on June 22 (the report just missed the July 1 NEWS LETTER by a day!*) he reported that from June 1 to June 22, over 10 inches of rainfall had been recorded at the experimental plots at Marionville, Mo.

"Needless to say," he comments, "this excessive precipitation has made very difficult the problem of maintaining a fungicidal cover on fruit and foliage. While it is true that much of the primary apple scab infection occurred in April in this district, the continuous rains of May and June have been very favorable to the further spread of this disease.

"The examination of drop apples was begun last week. It is interesting to note the large numbers of these which have apparently dropped because of scab infection on the pedicels. The drop apples in the check plot have averaged 99.6 percent scab. In some of the sprayed plots the percentage of scab runs from 15 to 50 percent.

"I have never seen as much injury from copper sprays as has occurred in this district this month. In early June, at which time many growers were ready to apply the third cover spray, there were indications that temperatures would be much higher. As a consequence, many orchardists discontinued the use of liquid lime sulphur and applied bordeaux mixture. A few days after this application there was a decided drop in temperature and for a week there was some rainfall every day. Bordeaux russet soon appeared and much fruit and foliage injury resulted.

"We have recently received specimens of Phyllosticta solitaria on Duchess apples.

"It has been interesting to observe the effect of the copper phosphate mixture on a block of pear trees near Springfield. In past years this block of pears has been severely infected with Fabraea maculata. This year is no exception and at the present time I should say that 90 percent of the leaves are showing infection and many have already dropped. Fruits are likewise heavily infected. In the block sprayed with copper phosphate mixture (only two applications) infection is almost entirely absent on foliage, and fruit are clean."

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*Note.--The NEWS LETTER is prepared for distribution in the Department's Addressing, Duplicating and Mailing Section. Copy goes in the 9th and 25th of each month for the 15th and 1st issues, in order to permit time for cutting stencils, my pseudo proofreading, assembling, stapling and mailing. JAF

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

Writing from the Fruit Disease Field Laboratory on June 22, he says: "The crop reports based on the June 1 condition, estimate that Arkansas will produce 1,518,000 bushels of peaches in 1935. This figure is 30,000 bushels less than the crop produced in 1934, but is more than the average 5-year production in the State from 1928 to 1932, which was 1,461,000 bushels.

"The first specimens of the apple blotch disease (Phyllosticta solitaria) I have seen this season were received from Hope, Ark. during the week. Specimens of bitter rot (Glomerella cingulata) were also received from Hope, but at the present time I have not detected either of these diseases in the orchards of northwest Arkansas.

"The 1935 apple season started during the week with the harvesting of the Yellow Transparent variety. The price paid for the fruit varied from $1.00 to $1.50 a bushel, with most of the fruit selling at the lower figure.

"The isolation studies from cherry material collected at St. Joseph, Mo. have yielded several white organisms, but not Bacterium pruni. In the report last week I mentioned that if Bacterium pruni developed on the plates the canker problem would be greatly simplified. The present work further complicates the problem, unfortunately."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"Seasonable weather prevailed through the week," says the station report for the week ending June 30th, "all vegetation making good growth. The iris are out in full strength, making an attractive display. Border plants are coming into bloom. All teams and tractors are cultivating continuously to keep ahead of seed growth, this work being supplemented by hand weeding and hoeing. We completed taking growth measurements in the shelterbelt and tree blocks. Data on winter killing has not yet been taken. Spraying and dusting for insect control in the vegetable plots is under way.

"Dr. Hildreth writes from St. Paul that he will likely be back to Cheyenne shortly. Going east from here on June 23d, a race had to be staged with the Portland Rose from North Platte to Grand Island, our party arriving at Grand Island in time to put Dr. H. L. Crane on the train--with a few seconds to spare! Civilian employees under the direction of officers from Ft. Warren are excavating for foundation piers for the CCC camp to be established just north of our east entrance. Building material is expected to be on the site by the middle of next week.

"L. A. Schall and A. K. Wolf of the Potato Experiment Station, Greeley, Colo., visited us on June 27th."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"In all pruning plots with the Anjou variety heavier pruning has again (for the third season) resulted in materially greater initial set of fruit," he writes. "This is not only true for the moderately vigorous trees in clay adobe soil, but also for very vigorous trees in Salem clay loam at the Scherer orchard. I am still at a loss to explain this marked response to pruning. Counts of the total number of leaves on one tree of each treatment show:

No pruning	(last winter)	101,500 leaves
Moderate pruning	"	72,600 "
Heavy pruning	"	49,500 "

It is conceivable that the reduction in leaf area, and probably in top root ratio, might have increased the water supply to the leaves on the more heavily pruned trees. However, on a normal, but cool day I found no difference in time of stomatal closing."

"Pear scab is continuing to spread in orchards which showed early infections," he writes under date of June 10th, "and is showing up to a slight extent in every orchard I have examined. It now seems that scab marking on the fruit will appreciably reduce the amount of 'extra fancy' fruit. My observations of the results of spraying with dry-atomic sulphur are too limited to judge the efficacy of this spray. It has caused some scorching of foliage when applied in the afternoon of a cool day.

He had written earlier that new twig infections by pear blight (Bacillus amylovorus) were continuing to show up in all orchards. "These infections are probably entering through the young leaves on the extending shoots," he suggested. "The amount of these new infections depends upon the amount of holdover infections from last season. In blocks where Howell blossomed last fall (the blossoms offered points of new infection last fall) some holdovers were unavoidably missed; and in these blocks blight has been very serious this spring."

Writing on June 17th he reports: "Fruit thinning of Yellow Newtowns is about completed and pear thinning is now under way. The Anjou variety is being thinned in a few orchards, the Bartlett variety in parts of many orchards, and Winter Nelis in almost all orchards. In some of the Bartlett blocks with most of the crop on the ends of the limbs, fruits in clusters are being thinned to one fruit per spur. Since I have found three or four good fruits in one cluster will each grow as well as when only one fruit is left per spur, this thinning of fruit cluster will probably tend to reduce the yield. With thorough spraying under 400 pounds pressure, I found no more codling moth entries in fruit on clusters than in fruits growing alone."

FRUIT AND NUT PRODUCTION

J. L. Pelham, Robeson, Da.

Writing of the checking up on percentage of grafts living in the experiments on the A. P. Watson farm he says: "In this experiment a total of 1,976 scions were set and 65 different covering materials were used. The percentage of growing grafts ranged from 0 to 100 percent, varying with the different materials used. Four materials resulted in 100 percent take and three others in 95 percent or better. The best percentage of take was secured with covering materials which were light in color, the best being rosin-beeswax with silica dioxide filler."

C. L. Smith, Austin, Tex.

"On June 15th the Colorado river rose to a height of 41.6 feet which is 20.6 feet above flood stage," he writes. "Very serious damage was done pecan trees and farm crops were ruined in the lowlands. In the narrower parts of the valley 75 to 90 percent of the pecan trees were washed to the ground and badly mangled. Many bridges were washed out and many homes and business houses on lower grounds were carried away.

Elmer Snyder, Fresno, Calif.

"During the past several years grape varieties, mostly Vitis vinifera, have been introduced from widely separated foreign sources for testing under California conditions--from Algeria, China, Corsica, England, France, Hungary, India, Italy, Japan, Manchuria, Morocco, Palestine, Spain, Syria, Tunisia, Turkey and U.S.S.R. A recent check indicates that a total of 252 varieties have recently been introduced, of which 120 will fruit this season. A study of the blossom characters this season showed that 12 percent had reflex stamens with poor setting of fruit. Some varieties are evidently identical with those we already have."

George F. Waldo, Corvallis, Oreg.

"During the past week we finished making our strawberry selections and have been busy numbering them," he wrote on June 22d. "About 225 selections have been made from plantings which originally contained some 12,000 seedlings."

C. F. Kinman, Sacramento, Calif.

Writing on June 15th, he reported that at Palo Alto, Yuba City and Chico, Calif. he had examined his root growth experiments. "Root extensions are slowing down very preceptibly with the advancement of the season except in the case of olives," he comments. "Olive trees are now in bloom and the roots are growing rapidly."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The latter part of the week was spent largely in taking results of additional field studies on spraying for the control of filbert blight," he writes for the week ending June 22. "The results of these studies closely check with those obtained in tests carried on in the vicinity of Newberg, Oreg. which were referred to in our report on activities for the week ending June 15th. In brief, these studies strongly indicate that timely spraying with bordeaux mixture will reduce the number of current blight infections materially and thereby indirectly increase crop yields due to a prevention of a loss of considerabke fruiting wood by blight. Apparently a fall spray treatment applied before the first fall rains occur is a pre-requisite to satisfactory control of this disease. Sufficient data is now at hand to justify continuation and an expansion of these studies. A number of growers in different sections of Oregon and Washington have expressed their willingness to cooperate in future studies, and plans are now being made to test the schedule, which has been tentatively worked out, under a wide variety of conditions.

"Dry weather continues to prevail in western Oregon. No rains of any consequence have fallen in this district since the first of May. Every indication points to one of the dryest growing seasons in Oregon on record. Walnuts are fast becoming resistant to walnut blight. Unless a rain of considerable proportions occurs within the next week there will be very little, if any, walnut blight in Oregon in 1935."

He had written earlier: "The week ending June 15 was spent largely in taking results of our spray tests for the control of the bacterial disease of filberts. The results indicate that timely applications of bordeaux mixture will materially reduce the number of blight infections. Thus in one test carried on in a 7-year-old Barcelona filbert orchard near Newberg, Oreg. only 2.3 percent of the trees in the treated plot sprayed with 1 fall and 2 spring treatments of the bordeaux mixture, respectively, were severely injured, whereas 49 percent of the trees in the untreated plot were badly diseased. Results of these studies further indicate that a fall treatment of bordeaux mixture applied before the occurrence of the first fall rains is paramount to satisfactory control, for in the plots which received the spring treatments only there was almost as much infection as in the untreated plots.

"A preliminary survey of the amount of walnut blight present in different sections of the Willamette Valley was also carried on during the week. No current infection could be found on Franquette nuts in any of the orchards visited...The absence of walnut blight in orchards in Oregon this year would tend to substantiate our contention that rain is the chief, if not the sole, agency concerned in the spread of blight, as the 1935 season will probably go down in history as one of the dryest growing seasons on record in western Oregon."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"During the past week we have transplanted the greater part of the potato sprouts which were shipped a few weeks ago from Plant Quarantine to Preque Isle, where they have been growing in our cold frames until large enough to set out in the field," he writes under date of June 22d. "This material comprises a collection of over 100 foreign varieties.....

"We have had an unusually long period of wet weather, rain having fallen nearly every day for the past two weeks. This has prevented the cultivation of the potatoes, except in fields which are on high land which is well drained, with the result that the weeds are getting such a good start that they will soon be difficult to control."

W. C. Edmundston, Greeley, Colo.

"There have been some hot days during the past week," he reports for the week ending June 22d.

"The warm weather has caused the snow in the mountains to melt rapidly, resulting in a heavy flow of water in the streams. The Cache La Poudre river that runs through Greeley has been running bank full for the past week. The rapid melting of snow is causing a loss of irrigation water, but this can not be avoided. There has been some talk of building additional reservoirs in order that flood waters might be stored. Channel reservoirs have also been discussed, but have not been built.

"The early potato crop looks good at the present time, and while it is a little early for psyllid yellows, no psyllids have been found to date on the plants. It is possible that the wet weather during Spring destroyed many of the insects. Grasshoppers and other insect pests have not appeared to date in large numbers. It is hoped that the wet weather has destroyed many of these pests. It is quite possible that weather conditions played an important part in destroying psyllids after the serious outbreak of 1911 and 1913.

"At present we are setting out potato seedling. This work has been delayed this year because of rainy weather and wet soil. Planting of the late crop has also been delayed and many of the growers have not finished plowing their ground. Since the hailstorm of last week we have harrowed our potato ground to break the crust."

He adds that as a result of hail injury the first cutting of hay will be very light and of very poor quality.

IRRIGATION OUTFIT ON WHEELS CHEAP AND HANDY ON SMALL FIELDS

Under the above title, a notice from our Press Service tells of a portable sprinkling outfit for irrigation crops so simple and inexpensive that farmers can build it at home. It is intended for watering small tracts of land in the humid regions where farmers do not ordinarily depend on irrigation.

The outfit, developed by Department workers, seems to be practical for furnishing water to low-growing crops on fairly level or slightly rolling land, and on soil that does not become too soft or sticky when wet. "The principal part," says the announcement, "is a galvanized steel pipe equipped with nozzles and mounted on wooden wagon or buggy wheels and supplied with water through a pipeline, or sometimes by a portable and sometimes by a stationary pump. Each time it is moved the outfit will sprinkle one-ninth of an acre if the pipe is 100 feet long, or one-fifth of an acre if 180 feet long. The shorter outfit can be moved by 2 men or boys, the longer by 3.

"A long, narrow tract leading directly from a lake or stream is favorable to inexpensive irrigation of this type, and so is a long narrow tract leading both ways from a well centrally located.

"A pumping outfit and a main supply pipe running the length of the field are needed for this as for a permanent system. Suitable hydrants along this pipe are required at intervals of 50 feet or a little less.

"The outfit may be made either from old materials in good condition, or from new.

"Irrigation nozzles are spaced 3 or 3-1/2 feet along the portable nozzle pipe line. Each nozzle is of non-rusting metal and screws into a small hole in the pipe line. This nozzle line is mounted on wooden or buggy wheels, the holes through the hubs of which are enlarged enough to let the pipe replace the axles. The wheels are placed every 15 or 18 feet along the pipe and all the wheels on one line must be of the same diameter. The pipe should be galvanized, and of not less than 1-1/2 inch size. Any smaller size is too limber for moving. The outfit includes a short hose to connect with the nearest hydrant.

"For practical operation it is important that all the irrigating positions used by one portable sprinkler line of this type be at right angles to, and on the same side of, the main supply pipe. Another sprinkler may, in similar fashion, irrigate from corresponding positions on the other side of the main. Because it is not practicable to roll the sprinkler pipe to an exact location, a hose connection is used at each irrigating position to connect it to the adjacent hydrant on the main ....."

CLOSING ACCOUNTS FOR FISCAL YEAR

Each year at about this time we have especially urged those workers responsible for purchases or who in other ways spend money officially, to forward promptly all vouchers covering expenditures chargeable to the fiscal year just ended--in this case up to and including June 30, 1935.

It is necessary that we have all charges for the Fiscal Year July 1, 1934 to June 30, 1935, on our books at the earliest possible moment to aid in closing up accounts for the year. Your help is needed!

Please contact at once all firms or persons from whom you have made purchases or to whom money is due for other items and send in the vouchers as soon as possible.

A careful check should be made and when you forward the last of the vouchers chargeable to the fiscal year just closed--to your letter of authorization or to your general allotment of funds--please attach to it a note stating that the voucher concludes your expenditures on allotments for the Fiscal Year ending June 30, 1935.

We have in mind of course not only purchase vouchers for supplies, but vouchers covering labor, your travel expenses, etc. We need to know as promptly as possible that there are no further obligations outstanding against your allotment or letter of authorization.

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Typewriters — We are still trying to locate a few of our typewriters. Those still unchecked on our inventory list include L. C. Smith Nos. 10667448, 497224 and 812265; and Underwoods Nos. 990795, 1538446, 2031825, 752694, 993366, 1064129, 2093088 and 2089632. We realize that it is sometimes difficult to see the numbers on these machines, but get out your flashlight and take another look to make sure none of these typewriters are in your office.

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Letters of Authorization — Copies of letters of authorization for the present fiscal year were mailed to the field men July 10th. These should be read carefully to note the number, the amount, and any authorization which may be different from that of the previous letter. Should the authority given not cover all your needs, please write your project leader at once for an amendment.

THE U. S. DEPARTMENT OF AGRICULTURE GRADUATE SCHOOL

The general circular of information relative to courses of instruction available in the Graduate School of the U. S. Department of Agriculture will be available after July 15, 1935. A limited number of copies will be forwarded to the Chief Clerks of the various government units for distribution to those requesting them, or they may be obtained by sending name and address to Dr. A. F. Woods, Director, Graduate School, 4090 South Building, U. S. Department of Agriculture. The courses for 1935-36 include the following:

1. The Library, Its Organization and Use (2)
2. Elements of Personnel Administration (1-1/2)
3. Administrative Law (2)
4. Federal Jurisdiction and Procedure. Second Semester (2)
5. History of American Agriculture (2)
6. Recent Developments in Economic Theory (2)
7. History of Economic Thought (2)
8. Mathematics for Students of Economic Theory and Statistics (2)
9. Principles of Accounting (2)
10. Advanced Statistical Analysis (2)
11. International Trade (2)
12. Elementary Statistical Methods (2)
13. Colloid Chemistry, or Electrochemistry, or Phase Rule and Catalysis (2)
14. Soils - (Composition of Soils) (2)
15. Soils - "Their Morphology, Genesis and Classification" (3)
16. Glass Blowing (1-1/2)
17. An Introduction to Organic Chemistry (2)
18. Basic Photography (2)
19. Plant Ecology (2)
20. Plant Diseases with Special Reference to Cause and Control (2)
21. Plant Anatomy (3)
22. Systematic Botany (2)
23. Plant Genetics (2)
24. An Introduction to Animal Parasitology (3)
25. Extension Seminars (2)
26. Editing Manuscripts on Agriculture, Home Making and Related Subjects (3)

27. Elementary German	(2)	34. Elementary Italian	(2)
28. Intermediate Scientific German	(2)	35. Advanced Italian	(2)
29. Elementary Russian	(2)	36. Phonetics	(2)
30. Advanced Russian	(2)	37. Elementary Dutch	(2)
31. Elementary Spanish	(2)	38. Advanced Dutch	(2)
32. Advanced Spanish	(2)	39. Elementary Portugese	(2)
33. Scientific French	(2)	40. Advanced Portugese	(2)

Those desiring courses in subjects not included in this program should confer with others interested to see if there are enough applicants to make a self-supporting class. The minimum number required in most cases is twelve, but special arrangements may be made with the approval of the instructors for the conduct of smaller classes. The cost per semester for two hour courses $12.00; three hour courses $15.00; glass blowing $18.00. Personnel Administration course $5.00. Figure in parenthesis indicates number of hours each week per semester.

Vol. 7, No. 14 July 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., August 1, 1935 No. 15

Stepping On It!

An English paper tells of a London horticulturist who reported to the police that a tall, thin burglar whom he had encountered in his garden at twilight had struck him a violent blow on the head. A police officer accompanied the man back to his home and made a careful search in the garden without finding any trace of the burglar. Then, as he turned to go back to the house, he solved the mystery and captured the assailant by treading on the rake!

Growers of honeydew melons in Bamberg County, S. C. encountered recently an assailant who struck them violent blows also--not on the head, but in a more vital spot, the pocketbook. Honeydew melon growing is a new industry for this section, there being about 300 acres planted this season. Fortunately, the growers knew where to turn for aid--to our colleague, Dr. Wm. D. Moore, whose headquarters are at Charleston, S.C. Dr. Moore found the enemy to be an old "rake," anthracnose. Following his usual custom when called upon for help, he "stepped on it." While the disease did considerable damage, it was checked to such an extent that a good yield was had over the entire harvest season. The growers are now planning to extend their acreage to 1,000 next year, provided they can have some assurance that the disease situation can be managed economically.

This, of course, is merely another example of an attempt by farmers at growing a new crop and being entirely dependent upon the aid that our research men can give. In the present case, we were able to save one man (his figures) $16,000, which is several times more than Dr. Moore's entire project costs the taxpayers of this country.

FRUIT DISEASES

G. A. Meckstroth, Chadbourne, N. C.

Writing from the U. S. Strawberry Disease Field Laboratory on July 13th, he reports: "We started some roguing experiments in an effort to see whether Blakemore fields can be freed of the yellows disease. On the station farm all definite cases of the disease were cut out in one plot and then questionable plants were staked for further observation. In some of these plants the very young leaves showed a slight yellowing not exactly typical of the yellows disease. Also, in some plants we found a mottling which is probably a nutritional trouble. We are not yet able to make diagnosis.

"Thursday morning we went to Magnolia, N.C., and rogued about an acre of Blakemores on the farm of Mr. Croom. This field had been rogued previously by his hoe hands, but there was still a scattering of yellow plants. We cut out all cases of yellows and observation will be made later to see whether it is possible to free a field of yellows by roguing. The symptoms are not as pronounced as they were a month or two ago. It is possible that some plants which did not show any symptoms then may be showing symptoms now....

"In the lower portion of a field at the Willard Station we discovered some strawberry plants in which the bud had been killed and the bases on the older leaves rotted away. Careful examination revealed the presence of Sclerotia, apparently Sclerotium rolfsii. Dr. Darrow said he had never seen this fungus on strawberries before. (Mr. Demaree and Dr. Darrow had come down from Washington the first of the week.) We staked 50 plants for further observation to see whether this disease will finally kill the runner plants."

He had written June 29th: "We are very much in need of rain in this section and unless we get moisture soon crops will be seriously damaged. A considerable number of strawberry plants have died in many fields, which will necessitate a lot of resetting this fall. A number of fields have been plowed up which the growers were planning on picking another year. During the first 6 months of 1935, we have had a total rainfall of 11.16 inches as compared with a 10-year average of 19.66.

"The dwarf disease is appearing in many fields and many plants are much malformed. I made a count of one row in a young field that was set out in March, 1934. There were 119 healthy plants and 24 dwarf plants. No doubt some of these healthy plants will become diseased during the summer. These plants had been ordered from a nursery and set out on newly cleared ground. Cases like this emphasize the importance of adequate nursery inspection service."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The week ending July 13 has been spent largely in field survey work checking up on certain reported troubles of nut trees," he writes July 13th. "A number of Franquette walnut trees grafted on California black walnut rootstocks were found dead and many others badly affected in a planting located on the top of Perrott Mountain (approximately 500 feel elevation) near Newberg, Ore. Seedling Persian walnuts growing under the same conditions showed no evidence of the trouble. In the affected grafted trees both the rootstock and the larger basal roots close to the surface were also dead or badly damaged. For the most part, the injured tissues occurred in streaks or patches in the bark both on the rootstock and on the body of the tree and the dead tissues had a decidedly sour odor. No pathogene could be found fruiting on the dead wood. Attempts were made to culture a causal organism from collections of affected tissues. As yet, no organism has appeared on the plates. If this is a case of winter injury it is not at all typical of what we have noted in other plantings which are known to have been injured by unseasonably cold temperatures. The fact that no trouble had been noted by the owner in this planting prior to December, 1932, at which time unseasonably low temperatures prevailed, may or may not be significant. In any event there is another case where seedling Persian walnuts show no or little trouble while trees grafted on California black walnut rootstock are declining....

"The temperatures during the week, particularly during the latter part of the week ending July 13, were above normal. On July 13, a new all-time heat record was set in the Willamette valley in Oregon with the maximum temperature ranging from 103 to 110° F. at different points in the valley. Portland, Oreg. recorded an official maximum temperature of 105° F. The only redeeming feature about the weather was that during this hot spell the humidity was low, falling below 30 at some points in the valley. Only five times in the last 15 years has the temperature passed the 100-degree mark at Portland. The last hot day at Portland was on August 15, 1933, when the maximum temperature of 102° F. was reached."

For the week ending July 6, he reported on studies on prune russet ('scab'), stating: "Prune 'scab' or russet as it more properly should be called, is obviously non-parasitic in nature, as all attempts made to isolate a causal organism from typical russet spots have been uniformly negative. A preliminary analysis of the results of our experimental studies indicates that one of the most important, if not the sole, factor concerned in the development of this condition in nature is mechanical injury to the young fruit early in the season, as is shown by the fact that this condition was experimentally reproduced in 100 percent of the attempts made by rubbing the sides of young bagged fruits gently with a branch.

NUT PRODUCTION AND DISEASES

Paul W. Miller (continued)

"It is, of course, possible and entirely probable that certain predisposing factors which are not well defined at present may be concerned in the development of prune russet. Thrips are not apparently concerned to any appreciable extent, if at all, under Oregon conditions, in the development of russet, as thrips-infested bagged fruits are not typically affected with the condition....

"Judging from my observations and from the reports coming to me from various growers, there will be a bumper crop of walnuts in Oregon this season. Indications point to about twice the crop of last year, as blight will not take the usual toll, due to the dry growing season which we have had in western Oregon this year. However, there is every indication that the crop will be below average in quality due to the lack of sufficient moisture."

He had written June 29th: "The week has been spent largely in studies of the case of a serious disease of Mollissima (Chinese) chestnut seedling trees which is prevalent in a test planting at Eugene, Oreg. This malady causes a death of twigs and branches. It is a bark disease only and is caused by a fungus belonging to a group of fungi known as the Fungi imperfecti. While the causal organism has not yet been definitely identified, it appears from a preliminary study to belong to the genus Fusicoccum. The organism has been isolated from infected tissues and a potted chestnut tree grown under greenhouse conditions has been inoculated with a spore suspension of the fungus in an effort to definitely prove its causal relationship to the disease. Further studies of this disease are in progress..."

H. F. Bergman, East Wareham, Mass.

"Our principal work this week has been the cross pollination of cranberry flowers," he writes from the Cranberry Disease Field Laboratory on July 13th.

"We have finished all the Early Black and McFarlin flowers which had been prepared for pollination. There was some rain on Monday and too wet for this work, otherwise it would have been completed. The flowering period is nearly finished, so that only a few days remain which will be satisfactory for this work....The State bog was dusted by airplane on Thursday. It took only a few minutes to dust the 12 acres. Some spots were missed due to irregularities in the shape of the bog. Several other bogs between here and Plymouth were dusted on the same day. The growers are greatly interested in this method of dusting.... The berries are setting well on the few bogs which I have seen. The set of Early Blacks on the State Bog is particularly heavy."

FRUIT PRODUCTION

George M. Darrow, Beltsville, Md.

"On July 8, I drove to Willard, N.C. to go over the blackberry hybrids, and to take down a truckload of seedling raspberries, he writes July 18th. "There were about 1800 seedlings--crosses of red and purple raspberries with the selections of the trailing raspberry, Rubus parvifolius, from Japan and China. There were also some seedlings of our N.C.102, a fine black to purple raspberry which is a second generation black raspberry x Rubus coreanus, and very vigorous at Willard. Several hybrid raspberry selections are highly resistant to leaf spot, anthracnose, and summer and winter temperatures at Willard. A group of seedlings from seed sent by Waldo show remarkable vigor and resistance to disease. These are crosses between Lloyd George and Oregon Nos. 10 and 40 which are selections of other Asiatic species.

"Several blackberries, crosses of Himalaya with eastern sorts, have been selected for propagation. They are resistant to the double-blossom disease through more seedlings showed the disease than previously.

"At Beltsville, three outstanding selections of the trailing raspberry, Rubus parvifolius, and at Willard one, have been made. This is the second selection of row tests. Those selected at Beltsville are 1 early, 1 late and an extremely firm late sort. The berries average as large as the Latham red raspberry, are much firmer, and are adapted to regions much farther south than American red raspberries. Though not equal to the best American raspberries in flavor, these selections are very attractive and produce good fruit far south of the present red raspberry regions.

"At Beltsville, the number 9 (Latham x Ranere) red raspberry was promising. Though not as large as Latham it was much firmer and brighter, more disease resistant, a little earlier, and better in quality. It is now being tested in North Carolina west to Oklahoma and California."

C. P. Harley, Wenatchee, Wash.

"Mr. Reeves is going full blast on the cherry mottle leaf work," he reports June 27th. "He has planted a large number of young trees of different varieties which he plans to graft and inoculate both artificially and with insects to study the mode of transmission of the disease. ....The cherry crop has been very fine this year in the Wenatchee district. The fruit was large and of fine quality. Good weather has been experienced during the harvest and the growers will have a little change in their pockets. The prices received by the growers have been 9 cents a pound for Bings and Lamberts and 5 cents for Royal Anns. The eastern markets started strong."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"I continued my adjustment of leaf area to number of fruits in the pruning plots," he writes for the week ending July 6th. "From casual inspection of the Van Hoevenberg plots it is obvious that the 'heavy' pruning has produced larger fruits than 'light' pruning or no pruning. The important feature is that this is true in spite of the fact that the leaf area per fruit was least with 'heavy' pruning. This confirms observations at the station during 1933 and 1934. The typically greater area of individual leaves following the heavier pruning was bought out when the average area of 300 leaves per limb per tree was determined.

	Average area per leaf		
	No Pruning (sq.cm.)	Light Pruning (sq.cm.)	Heavy Pruning (sq. cm.)
Van Hoevenburg	14.9	18.8	18.4
Scherer	16.3	19.2	22.9
Medford Expt. Station	18.9	19.4	20.9

This greater area of leaves following the heavier pruning was due not only to a greater proportion of large shoot leaves, but also to larger spur leaves."

On July 1 he had written: "Urgent requests from 2 growers to come quickly and identify 'a new disease sweeping through the orchards," constituted the first evidence of the effects of the 4 hot days in early June. Examination of the orchards showed all leaves on the distal halves of late shoot (or sucker) growths to have a black strip across the middle of the leaf. Some leaves merely had the tip blackened. In conjunction with the new horticultural county agent, Mr. C. B. Cordy, I examined other orchards. The conclusion was reached that the injured leaves were just unfolding during the hot June 3-6 period and were undoubtedly dessicated by the high evaporating power of the air (over 100 gm. daily water loss from white atmometer). No such injury was found in orchards which had received a late May irrigation.

Writing on June 25th, he said: "The big news of the week was the announcement of railroad acceptance of temporary (until December 31, 1935) reduction in freight rate on pears from $1.55 per 100 lbs. to $1.44. This will mean a saving to the grower of about 5-1/2 cents per packed box.

NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"The walnut crop is turning out to be one of the heaviest yet recorded, but with the moisture conditions as they are, it is highly probable that a large proportion of the orchards will have the same poor quality as they had last year," he writes July 13th.

"The filbert crop also seems to be heavy in orchards located on good soil. In many of the cases last fall the catkins completely dropped from the pollenizers in orchards on thin soil. It seems that in such cases the reports indicate a very light crop. However, the total filbert crop will undoubtedly be very good."

Reporting on activities during June, he writes: "A great part of the time was consumed in root study work in walnut and filbert orchards. The work in Benton county is almost completed. So far it gives some very illuminating data as to the behavior of the roots in different soils which ties in very nicely with the moisture records we have kept for the last few years....

"Since March 25th we have had approximately 2-1/4 inches of rainfall. In that time one rainfall was .8 of an inch and two were approximately .4 of an inch. Those represent the only precipitation of any benefit. The rest of the moisture fell in very limited amouuts. Just now (late June) we have had enough rainfall during the past two days to wet down approximately one-half inch in the cultivated field, and apparently the rains are over for the season...."

C. L. Smith, Austin, Tex.

"At Austin work has been done in salvaging some of the pecan trees at Pearce farm which were damaged severely by the flood on June 15," he writes for the June 17-22 period. "The pecan crop in many areas has been shortened by the nut case-bearer. Also very serious damage was done in the Colorado, Llano, Pedernales, and Nueces river valleys by the floods. At Pearce farm, the flood destroyed the crop almost completely.

Writing for the June 24-29th period, he adds: "Both the spray and soil applications of zinc sulfate have been very effective in controlling rosette in the Houk grove near Houston. This grove has a good crop even though nut case-bearers have destroyed a good percentage of the set. The trees are crowded and the nuts need thinning. Mr. Houk has scab well under control with the bordeaux spray, and has a very light black aphid infestation so far."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. T. Pentzer, Fresno, Calif.

"Since the last report activities of the personnel have been varied and have extended to several parts of the State," he writes on July 8th.

"In February shipping tests were made with cauliflower followed by transportation tests in May with cauliflower, lettuce, and carrots, which Mr. Mallison and Dr. Harding accompanied to eastern markets. Mr. Mann and Mr. Cooper helped us get the tests under way. These tests were made in connection with body-icing vegetables.

"Since the last test made on this project in 1927, one notable change in methods has been affected, namely, using crushed ice instead of chunk ice in top icing of the cars of vegetables. The tests made so far seem to indicate that its chief advantage is its ease of application, ice slingers or blowers being used to get the ice on top of the load, whereas with chunk ice the chunks of ice were thrown on top of the load by hand as the car was being loaded. When crushed ice is used, the car is loaded and then the ice blown on top of the load.

"During June the activities of the personnel were devoted to investigations on the handling and shipping of cantaloups in the Imperial valley. This work was carried on with the cooperation of Dr. Bratley, Dr. Wiant and Mr. Wright in New York City, and Mr. Barger and Dr. Jagger of our Division, and Mr. Scott of the University of California, in the Imperial valley. Test crates of the different commercial varieties of cantaloups were shipped in cars destined for New York, several maturities of each variety being shipped. In addition, limited shipments were made of one of Dr. Jagger's new mildew-resistant varieties. These investigations are being made to find if more palatable melons can be shipped to eastern markets.

"Mr. Asbury, in cooperation with Dr. Bratley of New York and Mr. Kinman of Sacramento, made several shipping tests of cherries from the Yuba City district in connection with some of their shipping problems involved in the condition on arrival."

ADMINISTRATIVE NOTE

Compensation Forms, etc. The Business Office regrets to report trouble in securing an adequate supply of Compensation Form CA-1. Every effort is being made to get a supply, and as soon as received they will be passed along to those field men who have requested them.

FRUIT PRODUCTION

E. C. Hughes, Davis, Calif.

"Observations were continued on the apricot seedling block during the week," he writes July 12. "Some of the midseason crosses ripened during this time and several of them look good enough to warrant special observation next season. The field notes are being entered on the permanent record cards and will later be tabulated in an attempt to discover, in a preliminary way, any facts of a genetic character which may be showing up....The temperature has risen markedly the latter part of the week and this probably will result in considerable 'pitburn' on many of the apricots still ripening. However, most or all of the commercial harvest is now completed in this district."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"We have finished transplanting the seedling potatoes in the field after a delay of several days due to an unusually long period of wet weather," he writes. "Over 11,000 plants were set out.

"A striking characteristic of the commercial crop in this section this season is its uniformity. There are many excellent fields, but on the other hand there are many fields which have been damaged by excessive rainfall. At the present time the indications are that this year's crop will be somewhat less that that of last year."

ADMINISTRATIVE NOTES

Coal An order has been received from the Procurement Division of the Treasury Department calling for certain special information to be supplied when our purchases of coal exceed 50 tons in any one fiscal year. If any such purchases are contemplated by our field stations, our Business Office should be notified immediately so that arrangements may be made for securing the information needed by the Treasury Department officials.

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Certified Invoices. The Business Office will also appreciate it if certified invoices to support the No. 1034 vouchers are submitted in DUPLICATE, so that one copy may be attached to the yellow form (1034-A) field for reference. In cases where the payee wishes a copy of the invoice returned with the check for identifying purposes, the invoice should be submitted in TRIPLICATE.

ADMINISTRATIVE NOTES

New Duties for H. R. Fulton. "Effective at once," says Dr. Auchter in a memorandum to members of the staff, dated July 12th, "H. R. Fulton will transfer from his former work in charge of Citrus and Subtropical Fruit Diseases to the administrative office of this Division.

"Due to the request of the Secretary that financial and works projects covering the breakdown of the investigational work in all bureaus be completely outlined and filed in his office, and because of the necessity for having each individual research problem outlined and filed in this office, it has become necessary that someone devote full time to getting such projects worked up and in keeping them up to date. Such duties will also be coordinated with the handling of our annual reports and similar activities. It seems desirable to have someone thoroughly familiar with Government regulations and with considerable research experience take charge of this work so that all of these matters will be handled promptly and accurately. Because of Mr. Fulton's ability and wide experience in research, it seems desirable to have him be responsible particularly for these phases of the administrative work.

"At the best such an assignment is a difficult one, and it is hoped that you will cooperate in furnishing information, data or statistics at all times upon the request of Mr. Fulton. I bespeak for him your full cooperation."

Tax Exemption, New Forms, etc. Procurement Division (Treasury Department) Circular Letter No. 105, just received, advises that new forms have been approved to replace the old tax-exemption Forms Nos. 44 and 1066. The new forms are intended to cover not only exemption of State gasoline tax, but other State taxes as well.

If your State, or the States in which you transact official business, have State excise taxes, sale taxes, etc., you should apply for a supply of the new forms. If your State has only a State gasoline tax and not the other taxes mentioned above, it will be all right for you to continue to use the old forms until your supply is exhausted.

Cameras We have had such encouraging cooperation in our search for missing typewriters that we now ask that you check over your cameras to see if you have any of the following: Eastman No. 26473, 3-1/2x5-1/2, 4x5 Speed Graphic No. 86029, 4x5 Hawkeyes Nos. 1023 and 65930, 5x7 Eastman No. 53526 and 5x7 Eastman No. 12950.

ADMINISTRATIVE NOTES

A man who had just repeated a lengthy poem was congratulated on his wonderful memory. "Yes," he said, "I never forget anything when it is once in my head." One of the listerners started up. "Is that so?" he inquired. "Then how about that five dollars I loaned you three months ago." "Oh, that's different," explained the man with the wonderful memory. "You see, I put that in my pocket."

Our Business Office asks me to emphasize the fact that these administrative notes in the NEWS LETTER are to be put in your head--not your pocket. Read them carefully and file them for future reference. It will save you, and us, a lot of trouble--and more important still, it will likely save you money.

For example, quite a few of our workers seem to have overlooked our warning that such things as canvas, deck mats, brushes, cloth bags, brooms, tentage, castings, MUST be purchased from Federal penitentiaries. (NEWS LETTER, Feb. 15, 1935, p. 60). It requires a very exceptional emergency statement to get outside purchases of this kind past the auditors and if you insist upon buying these items from your local dealers, you are quite apt to have to pay for them personally.

Too, we reminded you on June 1, p. 149, that when requesting appointments it is essential that we have information as to whether any member or members of the proposed appointee's immediate family are in the employ of the Federal Government, and if so, full particulars are needed, especially as to whether any such members have married and are maintaining homes of their own, etc. Apparently this warning has been overlooked by many as we are receiving recommendations for appointment without the necessary information concerning members of family so employed--which means that we have to write to the recommending employee to get this information before the request for the appointment can go forward.

Going back a little farther, the NEWS LETTER of September 1, 1934, p. 220, pointed out that in trading in autos or trucks all equipment and accessories attached thereto or used in connection therewith at the time of inspection and appraisal, except items specifically reserved by us, must be given to the dealer. This means (a fact which seems to be overlooked here and there) that a careful check must be kept when cars or trucks are turned in to see that equipment and accessories listed on inventory separately from the car are reported for dropping from our inventory.

Items lost in the field should be reported promptly--the certificate of loss explaining the circumstances and telling what efforts were made to locate the lost item. With this statement we will try to get the Bureau's approval for dropping the item from our inventory--and yours.

Vol. 7, No. 15 August 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

This NEWS LETTER is for distribution to employees of the Division only, and the material contained in it is of an informal and confidential nature, and is not to be published without securing the prior approval of the Division of Fruit and Vegetable Crops and Diseases. The reports of field workers and others represent, of course, their personal opinions, and so are not necessarily the official and final word on the subjects.

Vol. VII Washington, D.C., August 15, 1935 No. 16

Gathering Momentum!

A man was reading to his wife the newspaper account of the death of a famous naturalist. "Reaching for a rare plant," he read, "the naturalist slipped over the edge of the cliff, and as he fell gathered momentum--" His wife threw up her hands in astonishment. "Gathered momentum!" she repeated. "How perfectly amazing! What an enthusiastic plant collector he must have been. Think of picking flowers even as he fell to his doom."

I am not printing this in a spirit of levity, but as a warning to W. S. Porte. He and his associates are becoming a little bit too centered on this hunt for new and better tomatoes, I fear. We already have 9 varieties resistant to Fusarium wilt--or is it more now? And 3 of these are resistant to nailhead rust. The new varieties are widely grown over the county and have an estimated annual value, speaking in my usually conservative manner, of between ten and fifteen million dollars to American growers. But do you suppose that W. S. and his associates are easing up, resting on their laurels? Not at all. They are gathering momentum! And valuable new hybrids.

I am reminded of this by a Press Bulletin prepared by W. S. Porte, H. S. Wolfe and W. M. Fifield for the Florida Agricultural Experiment Station, and describing a very promising new hybrid tomato--the Glovel. It is a cross, made at the greenhouse here in Washington, between the GLObe and the MarVEL--hence its name--GLOVEL. It has the same ancestry as one of our other famous tomato hybrids, the Marglobe, but is not a selection from it. As a market variety the Glovel has consistently outyielded the Marglobe in the experimental tests at Homestead, Fla. during the past 4 winter seasons.

For a good many years now, we have been engaged in the work of developing tomato varieties resistant to disease. Needless to say, characters other than disease resistance have also received attention. The promising Marglobe, Break O'Day and Pritchard are outstanding results of this work. The Florida Agricultural Experiment Station, through its branch at Homestead, Fla., has cooperated in this work since 1931, the tests there being made with special reference to securing varieties promising for the great winter tomato growing area of the Lower East Coast of Florida.

The first significant product of this cooperative research, says the Florida Press Bulletin mentioned, is the Glovel. It originated in the greenhouses of the Department at Washington, D. C. as the result of a cross between the Globe and the Marvel (Merveille des Marches). Thus it has the same ancestry as the Marglobe, but it is by no means a selection from that variety. Together with many other crosses the Glovel was sent to the Sub-Tropical Experiment Station at Homestead, Fla. in 1931 for testing under field conditions. Year after year the poorest strains have been eliminated and the best segregated--and of all the crosses tested, Abu Ben--no, I mean Glovel--heads all the rest.

It resembles the Marglobe, says the circular, in the firmness of its fruit and in its resistance to Fusarium wilt and nailhead rust. The fruit has the general appearance of the Globe, being nearly globular in shape and ripening to a deep pink color--really the scarlet-red so much in demand with tomatoes offered for sale on the fresh fruit and vegetable markets.

Further, the Glovel fruits have been notably free from growth cracks. And the vine growth is vigorous and distinctly more open than that of the Marglobe, with the fruit partially exposed. This open type of growth is favored by South Florida growers in ordinary seasons as making it easier to spray and to pick the fruit--and selection was deliberately made for this character.

The Glovel has been grown experimentally at Homestead for the past 4 seasons. It has rather consistently outyielded both Marglobe and Globe varieties in production of marketable fruit, and has maintained its size well through successive pickings. In season it may be classed as a second-early variety, since it matures its fruit a few days earlier than Marglobe.

In order to make possible a more general testing of the Glovel seed was sent in May of this year to seed producing firms in many parts of the country, so that there should be a supply of seed available through the usual commercial channels for testing this variety on a large scale this coming winter.

NUT PRODUCTION

W. W. Aldrich, Medford, Oregon.

"The continued rapid fruit growth has ceased to be a benefit in many orchards and is rapidly causing concern of growers," he writes on July 29th. "The fruit is now, 6 weeks before harvest for Anjou, 2 inches or more indiameter. Not only is the weight of the fruit increasing the necessary propping, but unprofitably large sizes are in prospect. Although usually increased tonnage due to larger sizes just about compensates for the discount on larger sizes, the grower is not certain such will be the case this year. Two other features make the rapid fruit growth somewhat serious. The large fruit, which will mature in September, will have a greater tendency to be shaken off during early September winds than if the fruit were smaller. Also, the large fruit will cause the grower to harvest before the fruit has attained optimum maturity for subsequent high quality....The Anjou trees which were given a second oil spray now show a serious leaf burn, with the lower half of many leaves completely blackened. This leaf injury following a summer oil spray appears to be unusual and no explanation has been thus far obtained."

He had written July 22: "Diurnal changes in fruit size were determined on one hot day. By noon, before all stomata had closed in plots with high available soil moisture, the fruits had decreased in volume about 1 percent. No additional shrinkage was observed between noon and 4:30 p.m. The amount of shrinkage was the same in a plot with soil moisture approaching the permanent wilting percentage as in a plot with soil moisture near the field capacity. During the following night fruit volume increased 2 percent in the plot with low soil moisture and 4 percent with high soil moisture."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Refrigerated Transportation. Refrigerating Engineering (August) contains "Present Practice with Refrigerator Cars," an outline of investigations by the Department of Agriculture in fruit and vegetable transport, by W. V. Hukill of the Bureau of Agricultural Engineering and D. F. Fisher, Bureau of Plant Industry. An editorial note says:

"This review of current technical problems as a research man sees them conveys a good picture of the state of the art of refrigerator car shipment. The Department of Agriculture investigations have helped develop the standard car, the ice basket, drains for cars using body icing, protection against solar radiation and various devices for improving air circulation, including a wind-driven rotor now under test.

"Various current problems and the equipment used for measurement are mentioned briefly. The Department has instruments in use for tests of complete trains in transcontinental runs. Laboratory work such as improved measurements of respiration and vital heat are part of the present program."

--Daily Digest

NUT PRODUCTION

H. L. Crane, Albany, Ga.*

"The activities of the staff of the U. S. Pecan Field Station and Laboratory have been devoted almost entirely to a continuation of the study of the premature drop of pecans. The weekly records were taken in all orchards under study. The dropping of nuts from trees of most varieties continues in most locations. It seems, however, that the strongest and most vigorous trees are dropping a smaller percentage of the crop than are the weaker trees.

"Evidence of insect punctures or shuckworm burrows indicates that a considerable proportion of the nuts have dropped because of injury from insect pests. There is a fairly high percentage of drop of nuts from the clusters which have been bagged with 20-mesh-to-the-inch copper wire cloth, manila paper, or ventilated cellophane. The cause of this drop is not known at this time, neither is it known why a fairly high percentage of the nuts, which do not show insect injury, drop from the unbagged or check clusters.

"Damage caused by the shuckworm is becoming of increasing importance, since in some cases most all of the drop occuring at this time is due to the work of this insect pest."

Geo. P. Hoffman, Meridian, Miss.

"Locally-grown vegetables, fruits and melons are being offered in plentiful quantities," he writes for the week ending July 6. "Two very promising summer apples, one summer pear and a seedling peach have been observed. These so-called local varieties appear to offer sufficient promise to justify following up the propagating."

Milo N. Wood, Sacramento, Calif.

Writing to Mr. Gould on August 1, he says:"We now have a good crop on our 2,000 trees in the almond breeding tract. They are ripening much later than usual.

"We have had a lot of warm weather this summer, which, of course is not uncommon in the Sacramento valley."

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*Dr. Crane is leaving Albany to take up his permanent headquarters at the U. S. Horticultural Field Station, Beltsville, Md.

NUT PRODUCTION AND DISEASES

J. R. Cole, Albany, Ga.

"The pink rot fungus, Cephalothecium roseum, has made its appearance on the Schley variety in the Taylor orchard," he writes from the U. S. Pecan Disease Field Laboratory on August 3. "This fungus is a parasite on the scab fungus, but occasionally it penetrates further into the host than the scab fungus and causes considerable damage to the nut kernel in the form of rancidity. I believe this occurred in 1931 when a large percentage of the Schley crop in the vicinity of Albany was unmarketable."

He had written July 27th: "On Monday I drove to Cairo, Ga. and examined the Moneymaker variety in the Wight orchards where spraying for scab control is in progress. Pathologically, this orchard contains some very interesting information in regard to the scab fungus. The orchard was originally planted to the Frotscher and Schley varieties. The Schley began scabbing about 10 years ago and they were topworked to the Moneymaker variety. Then the Frotscher and, more recently, the Moneymaker, began scabbing. The Frotscher were not sprayed for scab control and the crop of nuts will be a total loss. The Moneymakers were sprayed once, the latter part of June, with 3-1-50 bordeaux mixture, and a large percentage of the nuts will be badly damaged or lost because of scab. The spray was applied too late to protect the nuts from the scab fungus.

"Scab was also found on the Teche variety, so far as I know, for the first time. Of especial interest was one tree, one-half Teche and one-half Moneymaker. The Moneymaker nuts were severely scabbed and most of the scab on the Teche was found on the side adjoining the Moneymaker. To me this indicates that the scab has gradually adapted itself from the Schley to the Frotscher, Moneymaker and Teche. Had the Schley been destroyed when they first began scabbing, the remaining varieties might have remained free of scab. With the Teche scabbing, the Curtis is the only important variety that I have never observed scabbing. Pathologists and growers have thought and hoped that the Teche would remain immune. One important point concerning such resistant varieties as the Frotscher, Moneymaker, Moore and Teche is that the scab fungus is usually confined to the nuts."

"By far the best results obtained by spraying are in the plots receiving a pre-pollination spray of copper phosphate or basic copper sulphate, followed by three and four applications of 2-1]2-50 bordeaux mixture and 2 pounds oil," he reported July 20. "In the Taylor orchard the plot received a pre-pollination spray of 4-2-50 copper phosphate and oil on April 12, followed by 4 applications of 2-1]2-50 bordeaux mixture plus 2 pounds of oil. A total count of 1,101 nuts showed only 2 severely infected by the scab fungus. Very poor control is resulting from the Zeolite, basic copper sulphate, and Coposil sprays."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The week ending July 27 has been spent largely in taking results of spraying and dusting tests for the control of walnut blight," he reports. "In spite of the fact that blight is not very prevalent this year in Oregon, even in unsprayed plantings, a significant reduction in the amount of infection has occurred from proper spraying and dusting. Thus in a seedling orchard located near Aumsville, Oreg., proper spraying with bordeaux mixture 3-3-50 reduced the amount of infection from an average of about 25 percent to not more than 3.5 percent.

"A reduction in the amount of infection has also occurred from the use of certain kinds of copper-containing dusts. In tests carried on in a Franquette planting near Sublimity, Oregon. four applications, two before and two after bloom, of a copper lime dust containing 25 percent monohydrated copper sulphate and 75 percent hydrated lime reduced the amount of blight infection from 8.7 to 1.5 percent. Basic copper sulphate dust was not as effective under these conditions as the copper lime dust, as is indicated by the fact that there was still 4.4 percent infection after three dust treatments as compared with 1.5 percent in the plot treated with copper lime dust.

"The injurious effects of the extreme heat which occurred in Oregon on July 13 and 14 is now becoming evident, as sunscald on the nuts is prevalent in greater or less amounts in practically all walnut orchards in the Willamette valley. There are reports current among the jobbers that the excessive heat cut the Oregon walnut crop about 25 percent, but my observations indicate that a loss of not more than 10 percent of the crop is in prospect."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"The 29 starch factories which have been operating in this county have recently closed one of their busiest seasons," he reports August 3. "It is estimated that approximately 12,000 cars of potatoes of the 1934 crop were manufactured into starch in these factories. One of the largest, which is located at Presque Isle, is reported to have taken in over 200,000 barrels of potatoes from which were made nearly 2,500 tons of starch."

He had written earlier: "There has been a great improvement in the condition of the potato crop during the past two weeks. With the exception of fields which were damaged by excessive rainfall, the plants are growing rapidly and have nearly reached full size (July 20)."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"I have mentioned many times in previous reports that the environmental conditions this spring were very favorable for the development of the apple scab fungus," he comments in his report for the week ending July 27th. "Specimens of Grimes Golden apples received during the week well illustrate this fact. This variety is normally very resistant and scab lesions are quite uncommon in the fruit, yet there are from 60 to 200 individual lesions per apple on these specimens.

"The weather conditions this year have also favored the extensive development of apple cedar rust. A fine collection of Gymnosporangium juniper-virginianae on the leaves of the variety Delicious were received from Berryville, Ark. during the week. The majority of the leaves had 75-100 aecia scattered over their lower surface."

He had written July 20th: "An examination of the 1935 spray plots made during the week showed that the codling moth was still almost a minus quantity. This lack of insect injury is one of the outstanding features of the 1935 season and the condition is general throughout northwest Arkansas....The harvesting of the peach crop in the Clarksville, Ark. area was started during the week. A crop of 100 cars is anticipated."

Leslie Pierce, Vincennes, Ind.

"Apple scab is present on the water sprouts and new growth of all the unsprayed check trees in our experimental orchard. Although the infection is much more severe on the wood of Winesap than on that of the other varieties in the orchard, numerous lesions are showing on the new growth of unsprayed Grimes, Turley, Delicious and Stayman. Except that they are slightly smaller in size, the lesions on young apple wood have much the same appearance of scab infection on leaf pettoles and fruit pedicels. Scab on young apple wood was first observed in this general section on Winesap in a neglected orchard at Henderson, Ky. on May 16, 1935.

"Severe damage caused by Coryneum-blight was noted in two adjoining peach orchards in the Mitchell, Ind. section on June 19. In some sections of the orchards a heavy early defoliation had occurred and the trees had produced a second crop of foliage. Some of the older leaves remaining on the trees were showing shot-holes .2 inch in diameter. About 80 percent of the fruit of all varieties in the two orchards, a combined area of 70 acres, was showing such severe injury that it will have very little market value. This is probably the first time that Coryneum-blight has severely injured a peach crop in Indiana."

FRUIT DISEASES

G. A. Meckstroth, Chadbourn, N. C.

"On July 30 I went to Willard, N.C. and made observations on some plants of Blakemore strawberry we staked as doubtful cases of yellows July 10," he writes August 3. "Some of them show definite symptoms of the disease; it was very marked on some young leaves which had come out since the plants were staked. Notes were taken on the 50 plants staked July 10, affected with Sclerotium rolfsii. Most of the mother plants were dead or very weak, but runners from these plants had rooted and were growing normally. A few plants had died out altogether, and there was no sign left of mother plants nor runners. In a few plants the main bud had not been killed....In many cases the stolons had rotted and were completely severed from the mother plants, but had remained attached sufficiently long to enable the daughter plants to become established."

Writing on July 20th he said: "A few days ago two growers came to the station and brought in some fine specimens of the dwarf disease. Both men set out their plants last February and March. One said that he thought on one side of his field 40 percent of the plants were diseased. These cases are not at all uncommon for growers in this section. I have had similar reports and made accurate counts in fields and find that a high percentage of the plants show dwarf disease within 4 months after they are set out. It seems to me that some changes ought to be made about nursery inspection for this disease. These plants are set out here during the winter and early spring at a time when the plants do not show any sign of the disease and the grower has reason to believe that he is getting disease-free plants. It is very disappointing to see 25 or 30 percent of the plants diseased by the middle of July. Not only is he suffering a heavy loss in these plants not producing a full crop, but in some cases he is introducing a nematode into newly cleared land."

H. F. Bergman, East Wareham, Mass.

"We have not had rain for some time and some bogs are again showing effects of drought," he writes August 3 from the Cranberry Disease Field Laboratory. "The size of the crop this year will be much less than in 1933, but may slightly exceed that of last year. Much now depends upon the amount of rain which will determine the size to which the berries will develop. July was very hot and humid, which favored the development and spread of fungous rots. Grapes are rotting badly and it appears probable that there will be much more rot in cranberries than last year, although it is not yet showing up much on the bogs." He had written earlier: "We have been removing the covers from cranberry blossoms which were cross pollinated and find that a generally good set has been secured. Some of the selected wild vines from Maine have a few berries on them this year which will give us an opportunity to observe the fruit characters."

STRAWBERRIES

Charles W. Culpepper, Joseph S. Caldwell, and Hubert H. Moon contribute to the Journal of Agricultural Research for April 15, an important study on the development and ripening of the strawberry--"A Physiological Study of Development and Ripening in the Strawberry." The biochemical changes occurring during the development of the strawberry fruit were studied during four seasons, employing 12 varieties which included all the more important commercial varieties of the Eastern States. Samples for analysis were collected at intervals of five to seven days from the fall of petals to full ripening.

The 12 varieties fell into four groups: A low-sugar, low-acid, low-astringency group consisting of Portia and Progressive; a low-sugar, low-acid, high-astringency group, made up of Aroma, Parsons and Sample; a medium-sugar, high-acid, medium-astringency group consisting of Dunlap, Howard 17, Gandy, Klondike and Mississippi; and a high-sugar, low-acid, low-astringency group consisting of Chesapeake and New York. The chemical characteristics of each of these groups as they affect the suitability of the fruit to various preservative treatments are considered in some detail. While none of the varieties studied is especially adapted to the preserver's use, primarily for the reason that the ratios of acidity and astringency to sugar content which are acceptable in a fresh fruit are too low to permit retention of balanced flavor and palatability when the fruit is preserved with sugar, the medium-sugar, high-acid, medium-astringency group most nearly approached the type desirable.

ASPARAGUS

"Composition of the Developing Asparagus Shoot in Relation to its Use as a Food Product and as Material for Canning," by C. W. Culpepper, and H. H. Moon, has been issued as Technical Bulletin No. 462. Since it is the young growing shoots that are used as food, and since the shoots may be harvested after they have grown for varying periods of time, it seems important to know the composition of the different portions of the length of the shoot at various stages of its growth.

The main purpose of the studies reported in this bulletin was to secure information in regard to differences in composition and palatibility of the material at different points along the growing shoot. A secondary purpose was to study the changes that occur in the composition and table quality of the young shoots as the harvesting season advances. As an aid to the understanding of the changes occurring in the growing shoots, studies were also made of the changes in composition of the roots during the cutting season. In order to determine the relationships of composition of the shoots to their suitability for table use and canning, cooking and canning tests were made upon the young shoots at short intervals throughout the cutting season.

APPLES AND PEARS EXPORTED MUST BE INSPECTED BY GOVERNMENT.

Under this heading the Press Service sent out a warning July 31 that with the opening of another shipping season for apples and pears shippers and carriers must keep their attention on the provisions of the Export Apple and Pear Act.

"A Virginia shipper who recently sent a car of apples to Montreal was compelled to return it to Rouses Point, N. Y., so that the proper inspection might be made," says the notice. "Under the law, the shipper may be penalized for a violation of this sort, being refused an inspection certificate for a period not exceeding 90 days. Both the shipper and the railroad which accepted the shipment, found guilty in court, may be fined not less than $100 nor more than $10,000.

"The Export Apple and Pear Act makes it unlawful for any person to offer for shipment or to ship--or for any person, carrier, or steamship company to receive for transportation or transport--to a foreign destination apples or pears which are not accompanied by a certificate issued under authority of the Secretary of Agriculture showing that the fruit is of a Federal-State grade which meets the minimum of quality established by the Secretary for shipment in export.

"The regulations are that apples must meet each minimum requirement of the 'United States Utility' grade or the 'United States Utility Early' grade, subject to tolerances for these grades, except that apples shall not contain apple maggots, and not more than 2 percent by count may have apple maggot injury and not more than 2 percent may be infested with San Jose scale.

"Any lot of pears must meet each minimum requirement of the United States Grade No; 2 for pears subject to the tolerances for this grade, and subject also to the same provisions as for apples as to apple maggots, apple maggot injury and San Jose scale.

"Fruit shipped to trans-Pacific ports need not comply with the maturity standards of the grades if the packages are conspicuously marked 'immaturity fruit." Less than carload quantities are not subject to the provisions of the Act, when shipped to certain countries."

ADMINISTRATIVE NOTES

Typewriters Keep an eye out for Underwoods Nos. 2093088-5, 2340211-5, 752694-5, 990795-5 993366-5 and 1064129; for L.C.Smith Nos. 497224 and 812565; and for Corona's Nos. 5-PO-1716, 6-MO-3793, 160354, and 2 0-58934. Report to our Business Office if any of these are in your possession.

FRUIT PRODUCTION

George M. Darrow, Beltsville, Md.

"You will be interested to know that the best Dorsett strawberry plot 24-inch mat in the spacing tests at Beltsville yielded at the rate of 10,577 quarts per acre (range 8,108 to 10,577 quarts)," he writes to Dr. Auchter. "The best Blakemore plot (24-inch mat), 12,714 quarts per acre (range 5,543 to 12,714 quarts); and the best Fairfax plot, 10-inch x 6-inch, 10,631 quarts (range 4,827 to 10,631 quarts). The 24-inch matted rows were not matted thickly, but were like fairly well spaced rows.

"In the comparison of standard distance between rows and the 30-inch distance on the Eastern Shoe of Maryland, the yields were variable, the best being 9,985 quarts per acre for Fairfax in the 42-inch spacing.

The outstanding results at Beltsville as well as at Willard were those on the relation of leaf number per plant in the fall to yield in the spring. The abbreviated record in berries per plant is:

No. of Leaves	Blakemore Berries	Dorsett Berries	Fairfax Berries	Bellmar Berries
2-leaf	13.2	12.7	12.2	16.1
4-leaf	34.5	18.3	36.3	25.7
6-leaf	41.8	26.0	59.0	42.6
8-leaf	58.8	47.8	69.7	37.6
10-leaf	64.7	41.3	77.3	52.7

These results were in general agreement with those obtained at Willard.

"The gross results (uncorrected) for the No. 9 red raspberry plots in triplicate, testing the best number of fruiting canes per plot, were:

Fruiting canes	Yield	Weight
5 canes pr plant	1,531 quarts per acre	1.75 gms. per berry
7 "	1,879 "	1.51 "
8 "	2,274 "	1.51 "

"We expect to have a change in the relative yields next year as the plants get older. The plots were laid out to test 5, 7 and 9, instead of 5, 7 and 8 canes, but we were 1 cane shy on the 9-cane plot."

FRUIT PRODUCTION

Elmer Snyder, Fresno, Calif.

"Considerable time has been spent during the past several weeks in working out methods of green budding applicable to grapes," he writes for the June 24-July 13th period. "A preliminary study of the results so far would indicate that a fair percentage of buds may be forced into growth provided the proper proceedure is followed.

"We have been principally interested in forcing seedling buds into sufficient growth to obtain fruit the second season. Our method briefly outlined is as follows: The grape seeds from controlled crosses are planted in the greenhouse in December, the resulting seedlings after several transplantings in the greenhouse are finally transferred to gallon cans and grown under a lathhouse. We have taken buds from the base of these seedlings and budded them into growth in a period of 9 to 21 days.

Greater care and various changes in technic had to be practised before successful results were obtained. A survey of our present method indicates that of one lot of 850 buds, 355 buds or approximately 43 percent grew, with the possibility of more starting later. Waxing over the bud at the time of budding appeared to delay starting. Nine days after budding, 21 percent of unwaxed buds were starting, while only 2 percent of the waxed buds were showing growth. Buds put in during the period from May 24th to June 3d are showing in many cases over 4 feet of growth at this time (July 12th).

"We are hoping to hasten the fruiting of our grape seedlings by this method. Indications at the present time are that many of the seedling buds will bruit 2 years sooner than seedlings planted in the ordinary way in vineyard rows."

C. F. Kinman, Sacramento, Calif.

"After a few hot days, cool weather returned and just now temperatures are about normal," he writes July 24th "With the exception of a few hot days we have had a cool to cold season so far. This may account partially for the slowness of maturity of some varieties of fruit. A number of varieties are somewhat later than normal in ripening. There were only occasional root extensions to be found at Paol Alto, Marysville, or Chico on recent visits to these places. The few hot days had brought the soil temperatures well up to normal after they had remained low all spring and early summer. Recent irrigations and injury by rodents have resulted in some root growth as they almost always do."

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"Our hot weather, although somewhat severe, did not last very long," he reports July 30th. "During the past week it has been relatively cool, in fact the nights have been quite cool, with minimums around 59°. This cool spell has been rather fortunate for the growers as quite a severe infestation of European red mite and two-spotted mite has broken out generally throughout the valley and colloidal sulphur sprays are almost necessary for any control of these pests, particularly the two-spotted mite. Had the hot weather continued, considerable damage probably would have resulted from the application of these sulphur sprays. We found rather a heavy infestation of red mites in our experimental D'Anjou trees and we are attempting to control them with an oil spray rather than with sulphur.

"The apricot harvest is over, except in some of the higher altitudes. Both the cherry and apricot prices to Wenatchee growers have been very satisfactory and the prospects are good for peaches as well. During the entire apricot harvest prices were maintained rather uniformly at from $40 to $43 per ton and in some cases going as high as $50. Although the early frost reduced the apricot crop somewhat, the yields were still quite high in most locations and the fruit was of fine quality. Two growers in the Squillichuck district were just ready to pick their apricots when a severe hailstorm struck the orckard. At first it seemed like a total loss but they were able to sell the crop to hucksters for $30 a ton at the orchard. I visited the Dryden section last week and saw some of the worst hail injury that I have ever seen in this district."

Writing July 23d, he reported: "The second brood codling moth flight has started in both districts. It seemed to be occurring in minor flurries and the peak will probably not be reached before 6 or 8 days.

"Severe scalding of apple fruits is occurring generally throughout the valley. The sudden change to this extremely hot weather, along with the increase of size of the fruit which tends to expose them to the direct sunlight due to their weight, is probably responsible for this injury."

HORTICULTURAL ORGANIZATIONS, ETC.

Miss Magdelene R. Newman, the Division's reference librarian, writes that the following mimeographed lists, compiled in the Division's Library are now available for distribution:

1. Horticultural Organizations of the United States and Canada.

2. Organizations Dealing with the Handling and Merchandising of Horticultural products in the United States and Canada.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

This NEWS LETTER is for distribution to employees of the Division only, and the material contained in it is of an informal and confidential nature, and is not to be published without securing the prior approval of the Division of Fruit and Vegetable Crops and Diseases. The reports of field workers and others represent, of course, their personal opinions, and so are not necessarily the official and final word on the subjects.

Vol. VII Washington, D. C., September 1, 1935 No.17

Poison Ivy. There is really no need to tell you that it is an old story, for it concerns Adam and Eve. Eve is supposed to have been very much disturbed over Adam's appearance. "My heaven, Adam," she said, "what in the world caused that awful rash on your back and shoulders?" Adam groaned a little. "It's the new shirt you made me, my dear," he explained. "I do wish you'd learn the difference between fig leaves and poison ivy."

To bring the matter down to modern times, it becomes apparent that there is no use trying to conceal the fact that John C. Dunegan is very, very susceptible to ivy poisoning. Even the ivy appears to know this. So, every year the task of collecting apple drops from the experimental plots in and around Fayetteville, Ark. has been a sort of martyrdom, a supreme sacrifice to the call of duty. Poison ivy is quite prevalent under a number of the count trees.

However, that is all over now. No, no, I don't mean that J. C. is dead--quite the contrary. It's the ivy poison that has been conquered. By washing their hands, arms and ankles with a mixture of ether and 50 percent alcohol immediately after they had finished picking the drops, he and his associate, Mr. R. A. Wilson both escaped contracting Rhus poisoning. It was the first time in his experience that J. C. has escaped it after touching the Rhus leaves. A little later, Mr. Wilson unwittingly acted as a check experiment by going out and picking apple drops--and forgetting the ether-alcohol mixture. He developed a bad case of ivy poisoning as a result. So from now on a bottle of this ether-alcohol mixture is going to be standard equipment in collecting apple drops!

The remedy is the result, with complications, of a suggestion made by Dr. L. M. Turner, professor of forestry at the University of Arkansas, who showed J. C. a clipping, source unknown, stating that the use of ether immediately after exposure to poison ivy was better than washing with strong soap and water. However, when Mr. Dunegan got around to preparing the remedy, his guardian angel prompted him to work it up on a basis of 100 c. c. of ether and 650 c.c. of 50 percent alcohol. He found later that the clipping made no mention of alcohol! There appears to be no real need for it except perhaps to carry the ether and dilute it so that a given quantity of ether will last longer than if used alone

It may be that W. C. Muenscher, department of agriculture, Cornell University, writing on "Poison Ivy and Poison Sumac" in the Forecase (August) throws light on this angle. He reports that recent experiments indicate that the most active poisoning principle, taxicodendrol, is a nonvolatile substance which is soluble in alcohol and insoluble in water. This non-volatile gummy substance is produced in the resinous juice of the resin ducts of the leaves, flowers, fruits and bark of the stem and roots, he says, and the wood, pollen grains and hairs from the leaves do not seem to contain it. "The poisonous principle can be carried to individuals in particles of soot in smoke," he adds. "According to this view poisoning cannot occur unless an individual comes in contact with some of the poison directly by touching some objects. In spite of numerous claims of poisoning without contact, tests by recent workers on many individuals indicate that contact with the poisonous juice is necessary in order to produce the blisters and vesicles so characteristic in ordinary cases of poisoning."

Of course, those who have made a profound study of the subject have decided that the only sure remedy for ivy poisoning is to learn to recognize the plant instantly--and to keep away from it. Even the ability to recognize the plant promptly is not always effective, as one expert learned after enjoying the moonlight one evening at his vacation resort. He found the next day that he had been watching the moon while leaning back comfortably against a bower of poison ivy, unnoticed in the dim light.

Too, experience has shown that what is one man's ivy may be another's poison, and a remedy that will give prompt relief to Peter may actually make Paul's ivy poisoning attack worse. Mr. Dunegan himself tried every remedy suggested without getting satisfactory results until this guardian-angel receipe was handed to him. The efficacy of the mixture apparently has its base in the fact that the resinous sap from the ivy leaves is soluble in ether--and in alcohol, too, according to Muenscher.

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"We have just completed the counting of the total number of fruits per tree in all soil moisture and pruning-soil moisture plots," he writes in the August 5th report on pear production research in the Rogue River Valley. "Although I have not had time to study the results carefully, three points seem clear:

"1. In general, increasing tree vigor by frequent replenishing of soil moisture in clay adobe soil has increased the percentage of fruit set.

"2. Allowing trees to suffer seriously for water just before harvest has in no case reduced fruit set as compared with trees with greater water supply before harvest.

"3. Heavy pruning of vigorous trees has resulted in greater increases in fruit set, as compared with light pruned trees, than has heavy pruning of moderately vigorous or low vigor trees.

"The total fruit counts of deflorated trees show that, in all but one case, the increased percentage of fruit set due to improved soil moisture conditions or to more severe pruning was almost entirely the result of the reduction in number of fruit-buds. Where defloration was severe, the increased percentage of fruit set was not sufficient to make up for the number of potential bearing points removed.

"Stomatal studies of pruning plots at Van Hoevenburg orchard showed a slight, but distinct, earlier closing of the "No Pruning' trees; which may account for the slower fruit growth for this plot Stomatal studies of the Pruning-Irrigation plots at the Medford Experiment Station showed later closing of the stomatal for the 'heavy' than for the corresponding 'light' pruned trees. This was true in each of the three soil moisture plots."

FRUIT DISEASES

Henry F. Bain, Wisconsin Rapids, Wis.

"Cranberry prospects still look promising," he writes August 12. "The State cranberry expert and the manager of the Wisconsin Cranberry Sales Co. (cooperative sales company) this morning prepared their joint crop estimate and made it 65,000 barrels as against 57,000 last season and an annual average of about 45,000. At the same time wa have just heard that the East is expecting only a small crop, about the same as last year; which indicates a probable price, rather return, corresponding to last year's--between $11.00 and $12.00 per barrel."

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

"Many strawberry plantings in the vicinity of Seymour, Mo. have been severely infected this season with strawberry leaf spot caused by Mycosphaerella fragariae," he writes from the Ozark Fruit Disease Laboratory on August 17th. "The most severe infections were generally found in fields where early sprays had been omitted.

"Strawberry yellows which caused considerable loss of plants in the Seymour section last year appeared early this season but the percentage of affected plants was much less than last year. At the present time very few yellowed plants are to be found.

"Harvesting of Elberta peaches was begun at the State Fruit Experiment Station and in the Koshkonong district early this week. The fruit is generally of good quality. Mr. Shepard, director of the station, reports that he has been getting $1.25 per bushel for Elbertas.

"A rain of 1.82 inches fell here on Tuesday, ending a six-week drought. Some hail accompanied the rain, but damage to fruit crops was negligible."

He had written August 3d: "Of considerable interest has been the finding of apple scab infection of twigs of a number of apple varieties. I have searched for the disease on twigs for a number of years, but this is the first season I have found twig infection. At present a survey is being made to ascertain the prevalence of the scab disease on twigs of the different apple varieties.

"I reported last month that the pears which were sprayed with the copper phosphate mixture were remarkably free of the Fabraea leaf spot disease. Since that time one more spray application has been made to this block of trees. Recent counts showed that the disease has made very little progress during the past 30 days.

"Grape harvest will be in full swing next week, before the middle of August. Moore's Early and Concord are the principal varieties grown in this district. Many growers have contracted their entire crop to wineries in this section."

Before the rain on the 13th, crops such as corn were beginning to fire, but sub-soil moisture was still plentiful and the fruit trees generally were showing no ill effects from the drouth, though for the 30 days previous to August 3d there had been only .18 inches of rain.

FRUIT DISEASES

G. A. Mechstroth, Chadbourne, N. C.

"Many of the strawberry fields are not making very much growth at present," he writes from the United States Strawberry Disease Field Laboratory on August 10th, "and many plants have died in the old fields.

"Hardly any runners have been put out in some fields. The plants appear to be at a standstill. It is possible that the very warm weather we have had recently is affecting the plants unfavorably. For the week of August 1 to 7, the maximum temperature ranged from 93°F. to 98°, and the minimum from 71° F. to 80°.

"We have had only .65 inch rainfall this month. During the first seven months of 1935, we had a total of 19.43 inches as compared with a 10-year average of 26.56 inches."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The week ending August 3 has been spent largely in taking results of spraying tests for the control of walnut blight. These results have again demonstrated that timely spraying with bordeaux mixture will effectively control walnut blight. They have shown, furthermore, that, in general, all powdered forms of bordeaux mixture are inferior to the home-made product. The addition of certain kinds of oils to bordeaux mixture for the purpose of reducing leaf burn has apparently not decreased the effectiveness of the spray to any significant extent, if at all.

"Accoring to the weather statistics recently released by the Government weather bureau at Portland, Oregon has had unusual weather in July. While the hottest day in the 65-year history of the bureau was recorded July 13, when the thermometer rose to 104.7°F., the 31-day period ending July 31 was lacking in the normal amount of sunshine for the month. Records show the district had 64 percent of the possible sunshine, the average being 71 percent. Temperatures rose to 100° F. on July 14, marking the first time in Portland's history that the century mark in heat occurred on two consecutive days. In 12 consecutive days of the month, July 11 to 22, the thermometer rose to 80° or more, the period including the 104.7 and 100° temperatures and two days on which the heat reached 90° or more. The lowest minimum temperature was on July 6, 49°. Precipitation during the month amounted to .28 inch, with the normal average for July being .61 inch."

FROST FORECASTING FOR FLORIDA

The Press Service announces that a special frost forecasting service for Florida, from the middle of November till April, has been arranged for by the United States Weather Bureau. Many fruit and vegetable growers in the citrus belt are equipped to protect their orchards and fields against destructive frosts and freezes, but without dependable local warnings they cannot always start protective measures in time to prevent serious damage.

This new Florida service, made possible by a $15,000 Federal and $10,000 State appropriation, will operate the same as similar services already set up in California, Washington, Oregon, Texas and southern Alabama. Headquarters have not been selected as yet, but E. S. Ellison will have charge of the work. Five other frost forecasters will forecast each day minimum temperatures for the following night in the sections assigned to them. These forecasts will be based on the regular weather maps and on special temperature, moisture and air mass observations made with equipment installed for the purpose throughout Florida. They will be published in the press and broadcast.

The service will go even farther for besides warning growers of dangerous crop weather the special frost forecasters will check thermometers and equipment used in heating orchards, tell growers where to place their thermometers and heaters, and give other aid and advice in protecting crops from frost."

GETTING "IN THE RED".

There is a Press Release, too, telling how we are getting "in the red" in this country, but I don't believe the announcement will cause undue alarm in general, and it is certain to be greeted enthusiastically by our tomato specialists, even though to them it is an old story. Oh, I almost forgot--I'm speaking of tomaties, of course, and the fact that they have taken rank as first in the United States as a vegetable canning crop. Right now in these subdued times the value of the crop is set at more than $50,000,000 a year, of which some $20,000,000 is spent for tomatoes by canners and manufacturers. And a good many tons are used for interior decorating in the home, of course, if you follow me, for it has been truly said of the tomato that we eat what we can--and what we can't we can. It is the poor man's friend, available all the year, relatively inexpensive, and versatile to an amazing degree. "Getting in the soup" does not impair its character--no, not even getting "stewed." In dressing, it is always in good taste. And tomato preserves! Ummmmmmmmm!

Did you have your tomato juice this morning?

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. T. Pentzer, Fresno, Calif.

"During the last three weeks," he reports for July, "the activities of this station have been confined largely to summarizing the data obtained on the precooling and shipping of cantaloupes in the Imperial Valley. In addition, the last week in July shipping tests on cantaloupes were conducted from the Turlock section. The crating and packing methods followed in the Turlock section are quite different from those of the Imperial Valley. In the former section most of the cantaloupes come from small acreages and the packing is done by or under the supervision of the individual grower....

"Some 'house packing' is being done in the Turlock district, and it is recognized by the buyers that more careful grading and uniform packing can be obtained under this method of packing where close supervision is possible. The result is that the 'house packed' melons bring a premium of 15 to 20 cents per crate over the field packed melons.

"The variety situation in the Turlock district is quite different from that in the Imperial Valley, where they have been forced to grow mildew-resistant varieties in order to remain in the business.

"Precooling of the cars of cantaloupes after loading, and shipping under standard refrigeration is the general practice. Portable car precoolers are used, and the cars, whenever possible, are cooled for about 8 hours. Our test indicated that the melons in this period of time were cooled from about 80° to about 47° or 48°.

"Table grapes are beginning to move from the Sam Joaquin Valley. Some of the early shipments from the Kern County district have arrived in the eastern markets by this time (July 31). Thompson seedless is the variety being shipped, with some Red Malagas about ready to ship...."

ADMINISTRATIVE NOTE

Journal of Agricultural Research.

Reprints or separates of Journal of Agricultural Research papers are not available for general (fre) distribution. The Department receives 250 copies, of which about 50 are needed for its various files, library sets, etc. The remaining 200 are sent to the author--or distributed among the authors in case there are more than one. This means, of course, that requests for reprints should be sent to the author--or to the Superintendent of Documents, Government Printing Office, Washington, D.C., who prints a supply, (based on advance demand through return of the usual notification slips), at 5 cents a copy.

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"We are still getting some of the results of sprinkling irrigation on fungus development," he reports August 16th. "A few of the orchards in Dryden and Peshastin have found it advantageous to use sprinklers. They are generally of the low type, but some of the water is thrown up into the trees. Where this occurs, we have recently found a large number of both apples and pears affected with downy mildew (Phytopthora cactorum). One Bartlett pear orchard averaged from 5 to 6 diseased fruits per tree. It is rather interesting that this fungus should be present under our atmospheric conditions, and be able to live through from year to year, finally attacking the fruit when moisture conditions are favorable.

"We have a striking demonstration this year of the effect of cool nights on color development. During the past two weeks we have again experienced cool nights with minima of about 50° F. The King Davids are quite highly colored at this early date and also the Delicious and Jonathans, the red sport varieties of course leading in this respect. If this weather continues, I think we can expect very fine quality from the standpoint of color this year."

ADMINISTRATIVE NOTES

We have received notice that the Regulations (fiscal and administrative) for the Department are to be revised and issued in a somewhat more usable form. If you have any suggestions to make in connection with these revisions and the form in which they should be prepared, they will be welcomed. Send them to our Business Office for transmittal to the editors.

Too, you have a chance to help the Business Office workers in their attempts to classify expenditures:

(1) When pruchasing gas, oil, etc. for Government-owned trucks or passenger-carrying cars, please state for which type of car it is to be used.

(2) When purchasing parts for Government-owned equipment of any sort, please give the names of the parts, and the numbers--if any.

(3) When purchasing lumber, paint, nails, etc. please attach to the voucher a short note explaining to what use the materials are to be put--that is, whether for repairs, alterations to Government-owned equipment or property, or for general use.

FRUIT DISEASES

H. F. Bergman, East Wareham, Mass.

"A little fruit rot is beginning to show up on some bogs," he reports for the week ending August 17th. "I made cultures from some berries from a small bog near Marion. There is a kind of rot on berries from this bog which we do not regularly find elsewhere.... Fruit worm damage has been very bad on many bogs, but their activity is almost at an end."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"We are experiencing the longest period of dry, hot weather that has been known in this section for many years, consequently it is expected that a light potato crop will be harvested," he writes August 17th.

"Shipping has not started from this part of the county. It is reported that one car was recently shipped from Houlton."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"At Sumner and Puyallup raspberries, loganberries and blackberries are being frozen dry," he writes August 22d. "Plans are being made to freeze the berries on wire mesh belts from which they pass into cartons and are stacked in the freezer until shipped.

"Quite a quantity of dry-frozen berries have been transported to Pacific Coast points, as far south as Los Angeles, in insulated trucks, using dry ice as refrigerant. This manner of freezing is popular with the operators because it is fast, a minimum of labor is used, and the expense of sugar is avoided.

"Fresh packing of Bartlett pears is about completed in Wenatchee and cold storages are receiving fruit for canning purposes. The canners have not bought heavily, and this week have dropped the prices to $20.00 per ton for No. 1's and $10.00 for No. 2's. King David and Winter Banana apples are now being packed.

"The weather has been unusually cool for this period in August, with only an occasional hot day and generally cool nights. The atmosphere is free of smoke this season, too, as forest fires have been rather limited."

ADMINISTRATIVE NOTES

Personnel Circular No. 18 August 20, 1935

INSTRUCTIONS GOVERNING EMPLOYEES OF THE DEPARTMENT OF AGRICULTURE TRAVELING IN FOREIGN COUNTRIES ON OFFICIAL BUSINESS.

On July 17, 1935, Personnel Circular Number 16 was issued relative to advising the State Department when officials of the Department of Agriculture proceed to Canada on official missions so that they may the better receive the appropriate courtesies and facilities in pursuance of their official duties.

An incident has subsequently occurred where a representative of this Department who was traveling by boat to Nicaragua experienced considerable difficulty, delay, and embarrassment because he failed to have a crew manifest and consular vicas on the ship's bill of health and clearance from Belize, British Honduras. The first intimation that the State Department had of this travel was when the Legation at Managua received a telegram from this Department's representative requesting assistance. Had the American Legation been previously advised through the State Department of the itinerary and proposed visit to Nicaragua, the Nicaraguan Government could have been notified beforehand, thus facilitating the work of the Department of Agriculture.

It is, therefore, directed that when officials of this Department contemplate traveling in <u>any</u> foreign country on official business, a letter be prepared in the bureau to the Secretary of State for the signature of the Secretary of Agriculture, giving the names and designations of the officials concerned and their itineraries and requesting that arrangements be made through appropriate channels for the extension of any possible courtesies and facilities.

W. W. Stockberger,
Director.

ADMINISTRATIVE NOTES

The folks in the Business Office apparently wish some of you were as careful as the man who applied for a hotel room in Boston. "Do you want an inside or an outside room?" asked the clerk. The man considered for a moment. "Inside, I guess," he said finally. "It looks like rain." Hence these few reminders--

If your salary certifications are forwarded promptly, your check will be received sooner. Certifications can be sent by Army Radio, if you are located in the vicinity of such radio stations. If sent by regular telegraph, the expense is NOT chargeable to official funds, and is to be paid personally by the individual making the certification. Army radio should be used whenever and wherever practicable. A notice recently received indicates that this service is able to handle a considerably greater volume of messages than is now being handled.

Notify the Business Office immediately when orders placed through the Washington office are delivered direct to your station. Sign the copy of the sub-request sent to you and return promptly. If all items on the order are not received, notify us indicating what items are missing.

Report lost items promptly, using the regular "lost" certificate for this purpose.

Obtain receipts for all property loaned to other Departments, Divisions or units and send a copy of such loan receipts to our Business Office for our Inventory Section.

Forward all requests for authorizations, supplies, leave, etc. through your project leader.

Keep an accurate record of your letter of authorization expenses and request an amendment when funds begin to run low. Do not exceed the amount of your letter.

Request dealers from whom you purchase supplies to render their bills (vouchers) promptly. Render your expense accounts every month for field expenses; and on letters of authorization for specified trips, render the account as soon as the trip is completed.

Do not buy such items as canvas, cloth bags, brushes of all kinds, brooms, castings, etc. unless you obtain clearance through the Business Office from the Department of Justice as such items must be secured from the Bureau of Prisons unless an exception is allowed by the Department of Justice for good reasons.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., September 15, 1935 No. 18

Another Little Peach in the Orchard Grows!

A father walked into a clothing store, followed by his four small sons. "I want to get suits for these four lads," he said to the salesman. "For all four!" inquired the salesman, beaming. "And is there any particular kind of material you would like?" The father gave him a hopeless look. "Yes," he replied, despairingly, "sheet iron. You haven't that, have you?"

I am afraid the father was in for a disappointment, but peach growers and handliers out in California have been making appeals of that sort to our associate W. F. Wight for many years--and having him deliver the goods. W. F., alas, is one of the large group of research workers who never took a course in horn tooting, so we do not hear much of his activities. But California growers know plenty about our stone fruit breeding work.

The incident I had in mind in mentioning the disappointed father is this: Some years ago the Dried Fruit Association at Fresno, Calif. suggested that if a peach could be produced having the shape of the J. H. Hale but with improved drying quality, absence of red color about the pit, increased sugar content and smaller pit, it would be a very useful addition to the variety group. So what? So last year five hybrids (J. H. Hale x Lovell-Halford III 21-6) came into bearing, some of them meeting all expectations so far as size, appearance and flavor are concerned, while the date of ripening is about the same as that of the J. H. Hale. We are very optimistic that the Association has been supplied with the "sheet iron" material requested.

FRUIT PRODUCTION

Drying tests are being conducted of this new hybrid and another of much promise--Leader seedling 26-11 x Muir-Halford I 26-50--also fruiting for the first time last year. The latter ripens earlier than the Muir and will make a longer season of good drying varieties, in this way increasing the efficiency of both labor and equipment.

As a matter of fact, more than 100 new peach hybrids, the result of our stone fruit breeding work, came into bearing for the first time last year. And new ones have been coming into bearing each year for several years past.

One of our new varieties, the Leeton, ripens at the season of the Triumph, for example--but sold last season at from 10 to 15 cents per box more than the Triumph, which is not considered a great drawback by most growers. Another one demonstrates its superiority in a somewhat different manner: The Maxine did not sell for any more than the standard variety (St. John) for which it is going to furnish super-lively competition--but it produced twice as much fruit as the St. John.

Too, trees of the Maxine near Marysville, Calif., made a growth of 8 feet last year, which appears to be rather convincing proof of the vigor of this new hybrid. One shipper at Penryn insists that the Maxine is the equal of the Elberta in shipping quality, and our own investigations have shown that in the interior valleys of California it gives a very satisfactory dried product because of the small amount of red color in the pit cavity. It has been shown to be excellent when canned, also.

Among the early maturing clingstone peaches we have Leader seedling 26-13 and Pratt-Low x Tuskena (Tuscan) 21-1, which have already demonstrated superiority over the Tuskena. A sufficient acreage of these two new sorts has been planted in the Yuba City district to justify the opening of a cannery. On the other hand, the Tuskena has so nearly disappeared in the district that a sufficient quantity for the operation of a cannery was not available.

While these two have already demonstrated their general superiority to the Tuskena, two others fruiting for the first time last year show even greater promise in some ways. These are (Tuskena x Paloro) x (Paloro x Pratt-Low) and (Leader seedling 26-13) x (Tuskena x Paloro). Both have been distributed for trial in the Yuba district and already their performance in comparison with the two other early-ripening clings shows them to be of unusual promise.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS

Spray Residue Removal from Apples, etc.

In view of the known congestion at the Government Printing Office, we are a good bit gratified to find that Farmers' Bulletin 1752, "Spray-Residue Removal from Apples and Other Fruits," is off the press and being distributed--and has been hurrying through the mails for some two weeks now, to meet a surprisingly active demand. This bulletin, prepared by M. H. Haller, Edwin Smith and A. L. Ryall, supersedes the old Farmers' Bulletin 1687, "Removing Spray Residue from Apples and Pears."

There is a story to the effect that a visitor to Washington, D. C. was standing on the coping of a wall at the White House, trying to get a view of the President as he passed in his automobile. After the President's car passed, the man stepped down without looking behind him, and had the misfortune to put his foot on a small dog being led by a very fashionably dressed woman. In deep contrition, he apologized profusely, concluding, "Madam, if your dog dies, I will replace him." To which she replied in chilly tones, "You flatter yourself, sir."

Well, sir, the boys have replaced the old stray residue bulletin-and then some. The new contribution is a much finer dog--good clear warning bark, and showing plenty of teeth, also. If fruit handlers will adopt No. 1752 as their watchdog, I believe they will have good reasons to be satisfied. And, believe us, a good watchdog has been needed for sometime in this particular backyard.

The desirability of using, for the control of codling moth, for example, a spray material that is nontoxic to humans is apparent, as it would not only eliminate the possibility of hazard to public health, but would also relieve the fruit grower of the expense and trouble of washing the fruit. A good bit of work has been done, and is being done, in an effort to discover and develop substitutes for lead arsenate in spraying to control the codling moth on apples and pears, but up to the present time no substitute has been found that is nontoxic to humans, effective in controlling the codling moth, and economically feasible. Unitl such a substitute is found, the fruit grower must continue to rely on lead arsenate or other toxic materials and remove the excessive residue.

The situation is complicated by the fact that the increasing difficulty of controlling the codling moth has brought about heavier and more frequent applications of spray materials, while oils and other stickers have been added to the sprays. Naturally this has increased the difficulty of spray residue removal and has emphasized the need for more effective removal methods. The revised Farmers' Bulletin places in the hands of those interested the very latest information on the subject.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. T. Pentzer, Fresno, Calif.

"During the past month the grape harvest began in earnest and the work at this station has consisted of answering calls for assistance in the precooling and handling of grapes for eastern and export shipment," he writes August 31st.

"Shipping tests have been made with grapes treated with sodium bisulphite to find the amount safe to use with slighly immature fruit, and also to determine if any advantages from the treatment were obtained at the end of the short 10-day transit period. So far little benefit can be seen from the treatment of grapes intended for immediate consumption. With mold beginning to develop in the field, further tests may reveal some benefits. Several carloads of grapes for export shipment to the Orient have been treated, mixing 5 to 10 grams of bisulphite with the sawdust necessary to pack a chest. There is considerable commercial interest in the treatment this season, particularly from those who tried it in a small way last year.

"A visit was made to the Santa Clara Valley last week where pear shipments of the fall varieties are under way. Hardy pears are being shipped, movement of this variety beginning July 26. The picking of Comice and Bosc varieties began last week. Prices for Hardy pears almost entirely export, have been satisfactory."

Edwin Smith, Wenatchee, Wash.

"Meetings with State and County horticulturists have been attended in order to formulate uniform washing instructions to growers and shippers," he writes August 30th. "Local inspectors are receiving many inquiries regarding picking maturity of Jonathans and Red Delicious apples. The first Jonathan pickings to grade Fancy and better are being made this week on the earlier sites.

"Bartlett pear prices have fallen to $15.00 per ton and the canners apparently have secured all they required. Jonathan prices are $1.10 to $1.15 for Fancy and better for early shipment. Quite a volume of Jonathan apples and Anjou and Winter Nelis pears have sold for export....The weather has been moderately warm during most of the past week. Weather has continued good for coloring and this will influence the dates of the Jonathan harvest, which will start actively after Labor Day in the more advanced locations."

Dr. Paul L. Harding has taken up permanent headquarters at Orlando, Fla. (Box 1058) and will be associated with J. R. Winston in the handling, transportation and storage work on citrus fruit.

FRUIT DISEASES

H. F. Bergman, East Wareham, Mass.

Writing from the Cranberry Disease Field Laboratory on August 27, he reports:

"Water samples for oxygen determination have been taken several times this week from a bog near Barnstable which is being flooded for fruit worm control. The water is to be left on the bog for 10 or 12 days. For that reason we are quite interested in following the oxygen content and in observing the effect of the flooding on the present condition of the vines and on fruit buds for next year. The oxygen content has been running fairly high, so I am not anticipating much injury."

Henry F. Bain, Wisconsin Rapids, Wis.

"After spending August 16 to 18 inclusive with Dr. Magness, a visit I was greatly pleased he was able to make, the annual August meeting of the Wisconsin Cranberry Growers Association at Wisconsin Rapids occupied us the 19th and 20th," he writes from the Cranberry Laboratory on August 29th. The meeting was well attended, as usual, and the Wisconsin cranberry estimate was given out publicly as 65,000 barrels. The remainder of the week was spent collecting leaf hoppers from wild leather leaf bogs for falseblossom inoculation purposes....The crop appears to be slightly later than normal, so that harvesting probably will not begin next week as usual."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. R. Barger, Riverside, Calif.

"After spending June in the Imperial Valley making shipping tests with Jagger, Pentzer and Asbury of new strains of cantaloupes developed to replace the old varieties that are all susceptible to powdery mildew, temporary headquarters were obtained at Riverside for the analysis of date samples that have been collected and preserved," he writes August 27. Through the courtesy of the Division of Western Irrigation Investigations who have the Rubidoux Laboratory at Riverside (the old Citrus Experiment Station) laboratory space was given to me for temporary use which will give me a very handy space for the sugar analysis of dates during the slack season in the date handling investigations."

"In addition to shipping cantaloupes of several stages of maturity of each variety in the same car, an opportunity was had to supervise the precooling of several cars and obtain the fruit temperature during the test. Cars leaving the valley with fruit temperatures for the load ranging from 86 to 50° were inspected by Wiant, Bratley and Wright at New York for over ripeness and decay and some very interesting results were obtained this first year of the investigations."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The forepart of the week was spent in attending a series of nut growers' tours in western Washington," he writes for the week ending August 23d.

"The bacterial blight disease of filberts was found to be quite prevalent in a number of filbert plantings visited on this tour, particularly in Lewis county. In one mixed planting of Barcelona and DuChilly filberts located near Chehalis, Wash., it is estimated that at least 75 per cent of the trees are severely infected. Many twigs of current and 1934 growth in these trees have succumbed to the effects of the disease. The owner is satisfied that this disease has reduced his crop by at least one-fourth.

"While bacterial blight does not attach the nuts directly, a death of many twigs and branches does have a distinct effect upon crop yields. The growers in this area were very much interested in the results of spraying tests carried on in Oregon during the current season for the control of filbert blight. A number of growers present signified their intention of spraying on a limited scale for the control of filbert blight during the coming season. Along with cooperative tests which we have arranged for in Oregon, some definite results should be forthcoming in another year if the weather conditions are at all favorable to the spread of blight.

"The Brown-stain disorder of filberts was found to be present in varying amounts in almost every orchard visited on this tour. In most of the plantings, however, not more than 5 per cent of the crop is affected, although in one Barcelona filbert orchard located near Woodland, Wash. it is estimated that about 15 per cent of the crop is affected. One of the interesting things about this trouble is that it is confined almost exclusively to the Barcelona variety. Not a single case of the trouble was noted on the DuChilly, Daviana, and Brixnut varieties. Just why this should be is not definitely known. It is suspected, however, that it may be due, in part at least, to differences in the state of maturity of the nuts when unfavorable combinations of weather occur."

He had written August 17th: "Brown-stain of filberts is present this season in varying amounts ranging from less than 1 up to 10 per cent in many Barcelona filbert plantings in western Oregon. This same disorder was very abundant in Oregon in 1931, but from 1932 to 1934, inclusive, it was present in only very limited amounts, if at all, in western Oregon.

NUT PRODUCTION AND DISEASES

Paul W. Miller (continued)

"Studies on the cause of this trouble indicate that it is a functional or physiological disturbance associated, it is believed, with unfavorable combinations of weather. As it has appeared during the current season since the hot weather which we had in the Pacific Northwest during the week of July 8013, 1935, it is thought that abnormally warm weather is associated in some manner with its development. Our present knowledge indicates that in all probability it is due to an improper balance between transpiration and conduction."

"In studies on the control of walnut blight carried on near Sheridan, Oreg. two sprays of bordeaux mixture 2-2-50 applied (1) in the late prebloom period of development and (2) immediately after bloom reached the incidence of blight infection from 49 per cent to about 7.7 per cent," he reported for the week ending August 10th. "Even better results were secured with copper oxalate, 2 pounds to 100. This copper spray reduced the incidence of infection from 49 per cent to about 4.2 per cent. Cuprous oxide (red oxide of copper) was not as effective as either bordeaux mixture or copper oxalate, as is shown by the fact that it reduced the amount of infection from 49 to 14 per cent. The region in which this orchard is located is the only district in Oregon where walnut blight is very severe this year. Most of the orchards in the Williamette valley do not have more than 10 per cent natural infection, the average being about 5 per cent.

"The results of field studies on the relative amount of prune russet, in variously situated orchards in western Oregon, carried on during the week ending August 10th lend additional support to the view that this trouble is the result of mechanical injury to the young developing fruits shortly after petal fall. Strong winds are apparently responsible for much of the damage, as is indicated by the fact that prunes in orchards situated in exposed locations are, in general, more severely affected than those in protected sites.

"For instance, in one protected Italian orchard located south of Dallas, Oreg. only 6 per cent of the prunes examined were found russetted. This orchard is located in a little valley and is protected on the south, west, and east by neighboring hills. It is exposed only to the north. As winds in this locality seldom, if ever, come from due north, this orchard would not likely be exposed to very strong winds during the critical period for russet development. This is quite a different story than was found in another orchard located about two miles east of Dallas. In this orchard something like 22 per cent of the prunes examined were found russetted to a greater or less extent. This

NUT PRODUCTION AND DISEASES

Paul W. Miller (continued)

planting is located in a wide open valley and is exposed on all directions. The owner states that this planting is subject to very strong winds. Many other similar cases were found during the course of this survey, so it can be definitely stated that, in general, prune russet is more prevalent in orchards located in regions subject to strong winds.

"In general, older orchards, particularly if they are not well pruned, have more russet than younger plantings. This situation is believed to be due in a large measure to the fact that older orchards have a larger number of twigs present in the tree than do younger plantings. The greater the amount of wood the greater the chance the fruit has to rub against an abrasive surface during a wind storm. The density of the prunes on the shoot appears to have some effect on the amount of russet which develops. All other things being equal, the amount of russet seems to vary inversely with the number of prunes per shoot, that is, the greater the number of prunes per shoot the less the amount of russet.

"Furthermore, there appears to be a difference in varietal susceptibility to this trouble. For instance, in studies carried on in a small orchard near Corvallis, only 8 per cent of the Italian prunes examined were found russetted, whereas 51 per cent of the fruit examined in the Green Gage variety of plums growing under identical conditions were found affected. In another case, only 7 per cent of the prunes examined in a variety known locally as "Miller's Sweets" (stock originally coming from a seedling prune tree) were found to be russetted, while 13 per cent of French prunes growing under the same conditions were found to be affected with this trouble. Herein may possibly lie one method of reducing the amount of russet in prune plantings. If it can be definitely determined that certain varieties which are commercially desirable are less subject to this trouble than the varieties now grown in Oregon, the solution of the problem might conceivably consist in topworking over established plantings which are now badly affected with russet, and in planting only such resistant varieties in the future."

NUT PRODUCTION

U. S. Pecan Field Station ant Laboratory, Albany, Ga.

Writing from the station on August 10th, Dr. Crane said: "The drop of nuts from the trees of the Schley variety continues. The cause* of this drop is apparently in a large measure due to injury by insect pests, particularly shuckworm and stinkbug. In orchards which have not been sprayed to control pecan scab the loss caused by this disease will be very great. Due to the frequent rains, the nuts on such susceptible varieties are badly damaged at this time and are dropping from this cause.

"On Friday of this week this district was visited by a hard windstorm and heavy rain. However, the wind did little damage even to heavily loaded pecan trees. At the station at Philema, 3.2 inches of rain fell."

APPLE PACKING

A Wenatchee, Washington, report to the Timberman (August) says in part: "The annual apple packing school sponsored by the chamber of commerce of Wenatchee was opened here August 14. The apple harvest is expected to open about September 20. D. L. Moreland, Lake Chelan apple grower, has conducted an apple packers' school here for six consecutive years, about 600 students passing through his classes. Packing the apple crop represents an annual wage of about $400,000.

"L. R. Wheeler, of the regional Forest Service headquarters, Portland, spent some time here in August, giving attention among other matters to the fruit and vegetable shook requirements of the Wenatchee district. About 75,000,000 feet of timber is converted into shook annually in the Wenatchee district, but the cut is not much more than half that amount so far this season. Another object of the inquiry was to learn the probable extent to which the fiber container will be used by the apple industry."

--Daily Digest

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*J. R. Cole, of the Albany station, throws a little light on this matter. He writes that a young lady asked one of the members of the station staff there what kind of work he was doing. He informed her that he was trying to find out why the pecans drop. She replied that she thought that had been settled long ago and was primarily due to gravity!

NUT PRODUCTION

C. E. Schuster, Corvallis, Oreg.

"In the soil moisture work," he writes August 31, "the orchards on shallow soil have been rapidly approaching the wilting point. Some of the prune orchards are apparently practically dry in the upper six feet and from studies the roots penetrate very little below that depth...

"The drop of blanks in the filberts which usually occurs in the first part of August is now on and in some orchards it seems to be quite excessive. We were in one orchard where the crop was rather short due to the lack of catkins on the pollenizers after last year's dry spell and then we even found filberts dropping off which were filled with a kernel.

"On a trip through western Washington we visited about 45 filbert plantings with a few visits to odd walnut trees thrown in. The outbreak of filbert blight that has shown itself to be so pronounced in the Willamette valley extended as far north as Snohomish county in Washington. In 1934, this same condition prevailed in the DuChilly variety in southern Washington. This year it extends north on the Barcelona and as we went north from Lewis county it became more commong on the DuChilly up to and including Snohomish county. North of there the blight showed heavily only on minor varieties like the White Aveline."

B. G. Sitton, Shreveport, La.

Reporting for the two weeks ending August 31, he writes: "In most of the orchards in the territory the foliage is apparently in very good condition and the pecans should mature satisfactorily. However, in the Sentell and the Webb orchards there is a large amount of foliage disease caused principally by vein spot, liver spot, and downy spot. Many of the trees have lost from 50 to 75 per cent of their foliage already and much of the foliage remaining is so badly affected that it is probably not functioning.

"Cultivation was discontinued in the Sentell orchard about four years ago and the Webb orchard has been in alfalfa sod for at least six years. It seems that this serious trouble from foliage disease is worse in orchards which have not been cultivated than in orchards where regular cultivation, especially early spring cultivation, has been practiced. It seems that the early spring cultivation buries considerable amounts of diseased foliage, thus cutting down the amount of early spring infection."

SECURING LARGER YIELDS OF SEED

Some weeks ago--in the July 1 issue, to be exact--we touched upon the work of B. L. Wade and W. J. Zaumeyer in originating disease-resistant beans and peas. In 1934 they were able to speed up the breeding work by producing 4 generations of beans--3 in the greenhouse and 1 in the field; and 4 generations of peas--1 in the greenhouse and 3 in the field.

A release from the Department's Press Service on September 8th announces that in the case of beans and thick stemmed peas, plant breeders of the United States Department of Agriculture have increased seed supplies rapidly by planting thinly on very fertile soil, which induces many branches. With thin-stemmed peas it may be necessary to destroy the terminal bud to induce branching. Under the right conditions, says the announcement, yields of 100 to 500 seeds a plant are not unusual.

Since the creation of new and desirable sorts by breeding--whether for disease resistance or to develop some other desirable character-is necessarily slow, any discovery or improved method of this type is almost invaluable since it makes possible a greatly enlarged production of seed from desirable and valuable plants and so increases breeding stocks much more rapidly than under ordinary conditions.

"Ordinarily," the announcement points out, "it takes 15 to 20 generations of peas or beans to produce a desirable variety, fix the type, and increase the seed to quantities large enough for commercial distribution.

"Department men have stepped up the production of these seeds still further, growing several generations of plants each year by using the greenhouse for two or three generations. It also is possible to harvest three seed crops of peas in 1 year without use of a greenhouse. For example, peas might be planted and harvested successively in Mexico, California and Colorado, as the season advances--or one or two crops might be harvested south of the equator when it is winter in the North."

You can't get away from it: The modern research specialist has discovered the recipe that made Sambo famous for efficiency. As he explained it: "I sticks de match ob enthusiasm to de fuse of energy--and jes' nachurally explodes."

And especially, it seems, "they know beans!"

Vol. 7. No 18 September 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I- M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., October 1, 1935 No. 19

Mosaic Immune Stringless Bean.

The next-door neighbor pointed to his newspaper. "Your boy must be a phenomenally fast runner," he remarked. "The paper says that he just burned up the track with his speed. I suppose you have seen him do it?" The fond mother shook her head. "No," she admitted, "but I did see the track on which they run, and there was nothing but cinders there."

Well, that's the sort of pace the team of Wade and Zaumeyer are setting. They are now announcing that their new stringless bean is ready for testing. The quantity of seed available is quite limited as yet, of course, but a small amount will be distributed among bean seedsmen throughout the country so that the strain may be tested under a variety of conditions.

The new bean is similar to the Stringless Green Refugee--BUT it is highly resistant to the common bean mosaic! Artificial inoculations under greenhouse conditions as well as in field tests have thus far failed to produce any mosaic symptoms, and when this strain has been planted with other beans that showed a high percentage of mosaic, no mosaic diseased plants have ever been observed in it.

The plants are of a very slightly indeterminate bush type and quite prolific. The pods are round, stringless, slightly longer and smaller in cross section than the Refugee. Preliminary canning tests indicate that the new bean is of good quality and possesses the same light green color as the Refugee. The color of the liquor is clear. Under Colorado conditions, where the new bean has been developed, it reaches the canning stage about five days earlier than the Stringless Green Refugee.

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"Growers are again faced with a late season codling moth problem," he writes September 6th. "The control up to this period has in general been good, but now with the advent of high temperatures, both day and night, the moth activity has increased alarmingly. Similar to last year's situation, the spray coverage in many orchards is not sufficient to prevent many late season fruit entries.

"Premature dropping of apples is another serious trouble found in many orchards this season. It is rather difficult to determine the exact cause of this drop in every case as orchard conditions such as soil moisture, spray schedules, etc. differ greatly. Regardless of the fact that when an explanation is wanting we blame the weather, I believe in this case it is at least partially justified for we experienced the same situation last year, only worse, under similar climatic conditions. Also, lack of sufficient soil moisture, and the application of late colloidal sulphur sprays, for two-spotted mites, undoubtedly played an important role in some orchards in causing this drop."

He had written August 27th: "With the sudden change from relatively cool to hot weather, which we have recently experienced, many interesting observations have been made in the orchards. During the cool days and nights the atmosphere was very clear and bright and the apples colored rapidly, but with the high daily temperatures came smoky skies from forest fires and warm nights. Under these conditions the bright red color faded to a dull red and the less colored fruits turned 'buck skin.' Unless the weather changes quickly we may have to back up in our earlier predictions of a high quality crop from a color standpoint. We are venturing another prophesy though, that there will probably be plenty of watercore.

"Mr. Reeves has been conducting a survey in several cherry orchards in the Wenatchee Valley on the incidence of 'Cherry Mottle Leaf.' His findings indicate that very few extensive plantings of Bing and Royal Ann are entirely free from the disease. Information obtained from owners of older trees leads Mr. Reeves to believe that the trouble may have been here as far back as 15 years ago, although it is possible that the grower might have mistaken some other disorder with 'Mottle Leaf.' In some orchards he finds the disease spreading from tree to tree while in others there appears to be no evidence of such spread. This season's experimental results indicate strongly that the disease is caused by a virus."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"A two-week period between the flights of the second brood of codling moth raised the practical question of whether one or two sprays should be applied to control this second brood on pears," he writes September 3. "Although entomologists issued the general recommendation that a second spray for this second brood was not necessary, I decided to invest the necessary $60.00 in the second spray for the Medford Experiment Station to provide coverage during the peak of hatching of the second flight.

"From casual observation of the amount of very light codling moth entry at the Medford Experiment Station as compared with codling moth entry in adjacent orchards without this second spray, it would seem that the $60.00 investment will be more than repaid in improved codling moth control. Our Bartletts had less than 1 percent codling moth, and in our Anjous the infestation will probably be even less. The fact that the control of codling moth this year has been much more successful than in 1934, however, must be attributed largely to a greatly reduced number of codling moths flying. The local entomologist attributes the few codling moth to a high mortality of over-wintering pupae due to some fungus.

"The 'wet' and 'dry' plots at the Scherer orchard have recently brought out a very interesting point; whereas fruit growth in the 'dry' plot was less than in the 'wet' plot during two consecutive warm periods, there was no difference during an ensuing cool period....

"During the first two days of last week threatening thunder storms caused me to measure all fruits in all plots before a wind storm caused a heavy drop. On Wednesday, August 28, such a wind storm came and lasted three hours causing from 10 to 20 percent of the fruit at the Medford Experiment Station to fall. Losses in other orchards in the Valley varied from 25 percent in wind-exposed locations to no loss in protected orchards. The Seckel variety suffered most."

FLORIDA CITRUS DAMAGE

Our Official Digest quotes September 10th a Tampa report by the United Press placing the first official estimate of the damage to the Florida citrus crop from the recent hurricane at 1,000,000 crates of oranges and grapefruit--the estimate coming from the headquarters of the Florida Citrus Exchange. In money this is expected to mean a net loss to the growers of $1,000,000. The grapefruit loss is placed at 50 percent of the crop in the affected areas, and 25 percent of the orange crop.

NUT PRODUCTION

Max B. Hardy, Albany, Ga.

"Our drop studies show that Schley nuts continue to drop while those of other varieties being used do not," he writes from the Pecan Field Station and Laboratory on September 14th. "The cause of the drop on Schley at this time is apparently due almost entirely to pecan scab, although some nuts are dropping from other undetermined causes.....The outlook for the pecan crop around Albany is somewhat better, I believe, than earlier estimates, and will probably prove to be the best crop since that of 1931. Some defoliation is occurring on the trees in poorly cared for orchards and will undoubtedly reduce the possibilities of obtaining a sufficient bloom next year for a large crop. This defoliation seems to be due largely to leaf diseases, comparatively little damage being done by black aphids."

Writing September 7th he said: "Albany and the immediately surrounding territory did not receive much effects of the tropical storm which passed south and east of us. There was practically no damage to the crops here, although we did have a fairly strong wind. In the path of the storm through Georgia the wind reached a limit of about 60 miles per hour, and not only blew off an estimated 50 percent of the nuts on pecan trees, but caused some defoliation and even uprooted a few trees. These are the reports which come from Monticello, Fla. and vicinity. Cotton and peanuts have been seriously damaged by the continued wet weather. The report comes also from Monticello that 32 inches of rain fell in 3 weeks--12 inches the first, 13 the second, and 7 inches (all in one night of the tropical storm) the third week."

C. E. Schuster, Corvallis, Ore.

"Last night the rain started," he reports September 14th. "It is still raining steadily with indications of more rain yet today. This is the first real rain since early April and is evidently doing more good than all the rain from the middle of April on. However, it is too late to do much for the nut crops.

We have 2 Federal entomologists here today looking into the situation of insects on filberts. The insects have been gradually increasing during the past few years and many of the leading growers are badly worried about the situation. Practically nothing is known of these insects and while the loss so far has been very small it seems to be developing."

"Filberts are also showing the effects of drought. This is showing up in the sandy river bottoms and on sandy hill soils," he comments in his report for the September 2-7 period. "In some cases the leaves are falling badly and in others the nuts are dropping with shriveled kernels. We have never known of the shriveled kernels dropping at this time of year before.

NUT PRODUCTION

C. E. Schuster (continued)

"One effect of the drought is to turn the attention of the growers to irrigation. That is one of the most popular subjects among the growers at the present time. In some sections the filings for water rights have become so heavy that a careful study is being made before any more rights are being allowed. Where irrigation in nut orchards has been practiced, either on walnuts or filberts, the appearance of the orchard is markedly good as compared with the average run.

"One thing that is interesting at the present time is the appearance of walnut trees that are interplanted with shallow rooted trees such as pears, prunes, or filberts. On good soils or what are listed as the better soils, the walnut trees are apt to be much greener in color than any of the interplants. This is so noticeable that the contrast can be seen as far as these orchards can be seen with the eye. From our studies it is quite apparent that the walnuts are driving down deeper than the interplants and are simply taking the greater part of the moisture."

FRUIT PRODUCTION

Elmer Snyder, Fresno, Calif.

"During the season of 1934 some time was spent in making a study of grape bud variations," he writes August 17th. "Considering the number of grape varieties grown, few definite grape bud variations have been reported. This may be due to the fact that there has been no intensive study of grape bud variations and also that no distinctly commercial "sports" have appeared.

"In our studies last year with the Panariti (Zante currant grape) and the Sultanina, a number of variations were located. Buds taken from shoots showing variable types were grafted into vigorous vines at our Fresno station. These buds were put in the vines in August-September, 1934. Shoots developing from these buds this season have produced fruit. A very definite "seeded sport" of the Panariti has been propagated. This <u>seeded</u> Panariti has produced clusters with seeds both when the sporting cane was left on the normal vines and also when buds have been taken from the sporting canes and budded on other vigorous canes. While this 'sport' is not commercially valuable in itself, it does indicate that sporting shoots do occur in grape varieties and also that in selecting cuttings for propagation care should be taken at least with the Panariti to see that propagation material is only taken from shoots which produce the normal seedless fruit....

"Some green 'T' buds of this year's grape seedlings have made over 6 feet growth and should produce fruit next season, at least shortening our breeding generations by 2 years."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"Filbert shrivel, a disorder of the nuts which results in the failure of the embryo to develop, was found present in surveys made during the week in plantings in the Willamette valley in greater or less amounts in all varieties and under all conditions. The DuChilly variety had more blanks or shriveled nuts than all other varieties examined. In general, orchards situated on soils which are known to be low in soil moisture have more shriveled nuts than those located on irrigated soils or soils containing a sufficient supply of available soil moisture. It would appear from the results of these studies that a lack of sufficient available soil moisture may be one of the factors associated with the occurrence of filbert shrivel....

"Studies of sunscald of filberts were also carried on in the field during the week ending September 7th. Sunscald was found to be the cause of the death of a number of 2-year old Barcelona trees located in a planting near Sherwood, Oreg. It is estimated that about 25 percent of the trees in this grove have succumbed to the ill effects of sunscald. The trees in this planting have all been headed very high so that the leaves present afford little, if any, protection to the tree trunks by shading.

"A press release issued during the week by the Government weather bureau at Portland, Oreg. clearly shows the unusual weather conditions which prevailed in Oregon during the month of August: "Less than an inch of rain fell in the 3 months usually considered the summer months--June 1 to August 31. To be exact, it measured just .98 of an inch for the 92-day period. Normal for this period is 2.77 inches. All heat records for Portland fell before the sun's onslaught on July 13, when the mercury jumped to 104.7 degrees. Another record was set the following day when the mercury rose to 100, the first time in the history of the local weather bureau that the century mark has been reached twice in one year, thus setting a second record. A third record fell on July's two scorching days for the two hottest consecutive days the city has ever had. And as though that were not enough, the mercury soared to 100 again on August 12. On 10 days the mercury reached or passed 90 degrees, which in itself may be a record for Portland. August 31 marks the end of the so-called "rain year" and in the 12 months just ended the city had 43.39 inches, or 2.30 inches above normal. Heaviest rainfall of the 12-month period fell in the latter part of 1934. However, precipitation since January 1, this year, amounted to only 15.97 inches or 7.70 inches under normal."

Writing August 31, he reported: "Additional evidence that prune russet is caused by mechanical injury to young developing fruits was obtained from surveys made during the current week. After much searching

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg. (continued)

an Italian prune orchard completely surrounded by timber was located in the Oakdale district near Dallas, Oreg. Only a very few prunes were found affected with russet in this planting. In fact, counts indicate that not more than 1.5 percent of the prunes in this particular orchard are russetted. The timber is so dense about this planting that it is difficult to perceive how strong winds could ever reach and sweep through the planting.

"About 5 miles east of this orchard there is another Italian prune orchard where the situation is quite different. This particular planting is located on the top of a hill out in the open. There is no timber or any other sort of natural windbreak about this orchard. Prune russet was very prevalent in this planting. Counts indicated something like 24 percent of the prunes in this particular planting were russetted to a greater or less extent. Now there is unmistakable evidence that thrips have been present in both of these afore-mentioned plantings, as thrips scars left from the deposition of insect eggs were found on the fruit stems of prunes in both orchards. If thrips were concerned to any appreciable extent in the development of russet, it seems reasonable to suppose that considerable russet should be present in the protected orchard as well as in the unprotected orchard which, as has been stated, is not the case. It seems likely, therefore, that the agency most responsible for the development of russet has been mechanical injury incident to the rubbing of the fruits against abrasive surfaces during wind storms."

DISEASES OF TRUCK CROPS

W. D. Moore, Charleston, S. C.

"We have just gone through with what is probably the longest rainy period of any summer on record for this section," he reports for the September 1-15 period. "The rainfall for July was 17.78 inches, 9.53 for August, and we have had more than 6 inches so far in September. Thus we have had in about 10 weeks more than half of our annual rainfall for the Charleston area. Naturally, this heavy precipitation during this period has hampered all farm work to a marked degree. Much of the land that was set aside for cabbage has not as yet been prepared and many fields that were prepared and planted are now merely fields of grass. This will probably result in a decreased acreage of fall cabbage and the fall bean planting will likely be well below 50 percent of the 1934 acreage. During the last few days there has been a large amount of field work done but as yet we cannot determine what amount of replanting has or will be done. All our work has been delayed as much or more as the average farmer. Our lands have been too wet to allow the use of any sort of heavy machinery, consequently little planting was done prior to the 13th..."

ADMINISTRATIVE NOTES

Tax Exemption. In the August 1 issue, page 194, we stated that the Procurement Division of the Treasury Department had announced new forms to replace the old tax-exemption forms 44 and 1066, the new forms covering not only exemption of State gasoline tax, but of other State taxes as well. Unfortunately we have as yet been unable to get a supply of these new forms for distribution so that if you are called on to pay a State sales tax, say, you should use the old Form 44, revising the wording to fit the case. With the revised forms, 44 is the Original and 1066 the Receipt, of course. The form is reproduced on the back of this page, the instructions below to be printed on the back of the form.

INSTRUCTIONS

This form shall be used in connection with purchases of supplies for use of the United States Government or its instrumentalities, where state, municipal, or other local taxes (such as sales tax, gasoline tax, etc.) are imposed on the supplies purchased.

The supplies purchased must be described in this form by items, stating number of gallons, quarts, pounds, dozen, etc. of each item, and the unit prices paid therefor.

Where the space provided in this form is inadequate for such description, there must be attached to this form a copy of the itemized invoice (or sales slip) covering the purchase; in which event the number and date of invoice (or sales slip) must be stated in this form:

Example: After the word "purchased" in the first line of the receipt, insert general description of supplies, followed by "per invoice (or sales slip) No. __, dated _____ attached hereto."

If the invoice or sales slip is not already numbered, it should be given the same number as the number of the receipt to which it is attached.

There shall be no deviation from this form except as authorized by the Director of Procurement.

As you know, the revision has been made to enable these forms to be used to obtain tax exemption in connection with the purchases of general merchandise as well as in the purchase of motor fuels. Officials of Government owned corporations certify that purchases are made "for use on official business of the United States Government."

EXEMPTION OF U. S. GOVERNMENT FROM STATE OR LOCAL TAX

. . . .
(Date) (Name and location of official station of purchaser)

I certify that I have this date purchased. . . . .
(Items and prices --

. . . .
See instructions on reverse hereof)

exclusive of State or local tax, for use on official business of the United States

Government or its instrumentalities; from . . . .,
(Name and location of dealer)

. . . ., and the quantity purchased was actually
(State)

delivered to . . . . .bearing
(Automobile, truck, motor cycle, airplane, boat, etc.)

license plate or identifying numbers . . . ., or delivered at . . . .
(Place, sta-

. . . . under my direct supervision.
tion, office, etc.)

. . . .
(Branch of the service for which purchased)

Where dealers will not accept this certificate in lieu of the State or local tax, receipts must be obtained in duplicate.

. . . .
(Signature of purchaser)

. . . .
(Title)

ORIGINAL.--Dealers will accept this only when purchaser is identified by U. S. Standard Form No. 45 (Identification Card). Certificate to be used only in securing tax rebate from State or local authorities.

U. S. Standard Form No. 44 (Revised) -- Approved by the Secretary of the Treasury June 28, 1935.

EXEMPTION OF U. S. GOVERNMENT FROM STATE OR LOCAL TAX

. . . .
(Date) (Name and location of official station of purchaser)

I certify that I have this date purchased . . . .
(Items and prices --

. . . .
See instructions on reverse hereof)

exclusive of State or local tax, for use on official business of the United States Government or its instrumentalities, from . . . .
(Name and location of dealer)

. . . ., and the quantity purchased was actually deliv-
(State)

ered to . . . . .bearing li-
(Automobile, truck, motor cycle, airplane, boat, etc.)

cense plate or identifying numbers . . . . or delivered at . . . . . .
(Place,

. . . . under my direct supervision.
Station, office, etc.)

. . . .
(Branch of the service for which purchased)

Delivered the above, and received the sum of $. . . . . . .

. . . .
(Signature of purchaser)

. . . .
(Dealer) (Title)

. . . .
. . . .

RECEIPT.--To be retained by purchaser, and should accompany voucher when expense account is submitted.

U. S. Standard Form No. 1066 (Revised) -- Approved by the Secretary of the Treasury June 28, 1935.

ADMINISTRATIVE NOTES

Extra Copies of Vouchers. The Accounting Section of the Division has to have for its reference files a copy of each voucher, expense account, mileage report, etc. submitted for payment. Delays in receiving reimbursement check are quite often caused by our failure to receive the necessary extra copies of such vouchers and having them made here. When instructions on a standard form require that the voucher, report, etc. be submitted in DUPLICATE, be sure to send us THREE copies as the instructions mean that two are needed for the Bureau of Department offices concerned. It is wise to make a fourth copy for your own files.

Thus the use of an extra sheet of carbon paper can often save hours of time here in copying and checking a voucher or report, especially since our accountants must put such vouchers, etc. aside to be copied when a typist is available. Carefulness in making sure that enough copies are sent to us will often save a day or more in getting the checks out.

Boards of Survey. Probably some of our field station officials have been wondering why appointments for Boards of Survey for the disposal of worthless equipment have not been received for the current calendar year. These appointments have been held up pending a revision of the forms and rules governing the disposal of such property. They are now being prepared, however, and will be sent out as soon as received.

It is the intention, however, to limit the disposition of such property to wornout property so broken as to be absolutely useless. All other items of discarded equipment, etc. must be listed and the list passed around the Bureau and Department to afford an opportunity for their transfer to any office or division that may be able to use them to advantage.

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

Writing from the fruit disease laboratory on September 7th, he reports that on his return after a visit to the East, including Washington, D.C., he found the situation in Arkansas to be much the same as when he left Fayetteville early in August.

"The drought has been only partially broken by two light showers," he reports, "and the apple trees in my experimental plots continued to suffer from the moisture deficit. The disease situations remained unchanged except in the check plot where the amount of blotch had increased appreciably."

ADMINISTRATIVE NOTES

Specifications. A recent decision of the Comptroller General (A-61437) again emphasizes the importance of proper wording in specifications to be used in connection with the requesting of bids. Specifications must not be so worded that they prevent bids from those who might be able to supply satisfactory materials or equipment, and where certain products or articles may be mentioned by name (for the purpose of identifying the type or construction, etc.) the names should be followed by the words "or equal." No recommendation will be accepted for the rejection of a lower bid unless we can show clearly that the lower priced article does not meet the specifications in some respect that makes it unsuitable for our requirements. Bids should permit the widest competition and insure our receiving the lowest prices. Slight changes in the clauses which must form part of such specifications are being made continually, so whenever time permits it is very desirable that you send to your project or to the Business Office the specifications you intend to use in asking for bids, so that they may be checked carefully. Quite often this may mean the saving of the trouble of re-advertising for the bids.

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Local Dealers. A father had taken his five-year-old son to see his "brand-new baby brother," and was much amazed to have the little fellow burst into tears after looking over the newcomer. "Why, son," said the father, "what is the matter? Aren't you glad we have a new boy?" The little fellow raised his tearful face. "Did you trade me in on him?" he wanted to know.

This has reminded Roy Gillette of the desirability of giving as much of your official business as practicable to your local dealers--where prices justify it, of course, and where no contracts or regulations prevent it. This means that you should, when requesting the purchase of equipment that will necessitate obtaining bids, send along the names and addresses of responsible local dealers who are in a position to furnish the equipment. This is especially desirable in trading in little boys--I mean automobiles and trucks--as the local dealer is the one who has to accept the turned in car and can usually offer a better price than the factory on the used equipment.

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State Contracts. Do not purchase articles on State contracts. The Comptroller has advised that payment cannot be approved for purchases of material or equipment based solely on contracts obtained by State purchasing officers. Although it may seem that the prices obtained by these State officers are low and fair, there is no assurance, you see, that a lower price could not be obtained on bids for the Federal Government--in view of additional quantities required.

ADMINISTRATIVE NOTES

"Dead" Envelopes. The Country Gentleman told some time ago of a horse show--and exhibition of draft horses. Up and down the center aisle of the big exhibition building hurried a haughty dowager, evidently unable to locate her entry. Seeing her apparent confusion, an attendant stepped up to her and inquired solicitously, "What's the matter, Madam? Can't you find your stall?"

We hope your feelings will not be hurt as deeply as those of the woman of this story, but while we can find our stall all right, we are getting worried about other things--especially Library periodicals or books sent in to Washington in some of the manila or jute (brown) envelopes you are using. They are so old that they are actually brittle and crumble in one's hands. The result is that where they are used we sometimes find little but the frank pasted on the envelope when the package gets here. These envelopes at their best wouldn't carry a draft horse safely, but at their worst they are absolutely useless for any mailing purposes. Please, then, look over your stock of these brown envelopes, test them out, and if they crumble or tear easily, discard all of them and ask the Business Office for fresh stock.

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Thinking of Re-Tiring? Many of our field employees have written during the past few months in regard to tires and tubes--for automobiles and trucks, not for themselves. They have been expecting a notice calling for future requirements on a quarterly period basis. The Procurement Division of the Treasury Department, however, has been issuing a new contract for tires and tubes every three months--but not on a "definite quantity" basis. Under the present arrangement orders may be placed when the tires are needed. Delivery will be made promptly from the contractor's nearest distribution point. Orders should be placed sufficiently in advance of the time the tires and tubes will be needed to allow for placing the order and making delivery. If you prefer any particular make of tire, you should state your preference as the contract covers several makes and brands. A new contract will be available soon, so if tires or tubes will be needed in the near future, please send in your orders to the Business Office. If at any future time the old "definite quantity" method of procuring tires and tubes is again put into effect, we will see that you are advised in time to get your estimates in with time to spare.

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Letters of Authorization. It is again necessary to urge that requests for letters of authorization or amendments therefor be received in the Business Office about 5 days in advance of the effective date. In the case of authorizations for the attendance at meetings or conventions, additional time should be allowed as these must receive the approval of the Secretary in addition to the usual Bureau approval. Send all requests through your project leader, of course.

Vol. 7. No 19 October 1, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., October 15, 1935 No. 20

As Others See Us! Scotland's famous horticulturist and poet, Robert Burns, once expressed the wish: "Oh, wad some power the giftie gie us, To see oursel's as others see us." He appeared to believe that such a view might have a chastening effect upon one. As it happened, he was born some 175 years too soon to see the September 15, 1935 issue of the Plant Disease Reporter, otherwise he might have realized that seeing ourselves as others see us--or our work--sometimes lifts up rather than depresses. This issue contains as fine an indirect tribute to the value of our fruit and vegetable handling, transportation and storage investigations as one could wish.

It comes about in this way: Some two years ago the Plant Disease Survey began an attempt to estimate losses which occur while fruits and vegetables are in the hands of the distributors and consumers, and this is a preliminary report based on a survey conducted at Knoxville, Tenn. The Press Service release heads its review of the report: "Most Fruit and Vegetable Losses can be Avoided by Right Handling." This is a plank right out of our platform. And since these losses may run as high as 25 percent in some of the fruit and vegetable crops, the importance of the handling, transportation and storage studies can easily be seen even by those who may not happen to know of the millions of dollars annually already being saved by improved methods pioneered by us.

The greatest losers through careless handling are undoubtedly the producer and the consumer, since the distributors have an opportunity to pass along their losses to some extent. And when the consumer has encountered an unsatisfactory product more than once or twice, he is quite apt to stop buying that particular product, which doesn't help the producer.

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"According to reports in the local newspapers, farmers of Northwest Arkansas received about $134,000 for the 1935 grape crop, it is estimated," he writes in the report of the Fayetteville Laboratory for the week ending September 28th. About 400 cars of grapes went out of this section by rail and truck, and of this number about 300 cars were from Washington county. Prices ranged from 8 to 12 cents, with the average about 10 cents a basket. Springdale shipped 82 cars by mail and truck shipments brought the total from the area to about 232 cars, it is estimated. Fayetteville shipped 16 cars by rail and Farmington 18. The truck shipments probably were a little more than rail shipments in both these places. The shipments this year were almost double last year's, and the price held up well throughout the season.

"I received from Stark Brothers nursery at Farmington a number of Early Red Bird apple trees showing cankers on the main trunk caused by the cedar rust fungus. A visit to the nursery revealed the fact that the rust infection was confined almost entirely to this one variety. Cedar rust on Ada Red nursery stock was quite prevalent in this section in 1926, according to Dr. V. H. Young, but the interesting feature of the present outbreak is the presence of very active black rot (Physalospora obtusa) cankers surrounding each rust lesion. Other nurseries will be visited during the coming week particularly to see if the Ada Red variety is affected again this year and to see also if the black rot fungus is present. The exact species of Gymnosporangium has not been determined as yet as the specimens from Farmington were not satisfactory for this type of work."

H. G. Bergman, Amherst, Mass. (Cranberries)

"We have continued the examination of berries from experimental plots which were picked earlier," he writes September 28th. "We have now completed the first examination of berries from the bog on which our most extensive series of experimental spray and dust plots were located. The berries from plots which were sprayed show a marked improvement while dusted plants show little or no difference as compared with checks....The first incubator test on berries from the various bogs has just been completed by Mr. Truran. The percentage of rot in Early Blacks is the same as last year, 4.2. The keeping quality of Howes is poorer than last year, the percentage of rot this year being 5.7 as against 1.3 for last year. ....Reports from a number of growers who have picked berries indicates that the yield is falling below the estimate. This is due in part to the fact that the berries are somewhat under normal size. Early Blacks this year are expected to make up about 75 percent of the total crop in Massachusetts."

FRUIT DISEASES

G. A. Meckstroth, Chadbourn, N. C. (Strawberries)

"I have been scouting around in this section to check up on the Dendrophoma leaf blight, and find that it is generally distributed through many fields. There is enough of it to considerably reduce the functional leaf surface, and this disease may prove to be an important factor in determining the leaf surface of the plants through the summer and fall. Dr. Darrow's work has shown that there is a direct relation between the leaf surface in the fall and the yield the following year. Scorch is more common in most fields than the leaf-spot disease."

Leslie Pierce, Vincennes, Ind.

"The hot, dry weather in July and the first week in August checked the growth of Stayman apples. The resumption of growth following a precipitation of 1.43 inches on August 6 resulted in the severe cracking of at least 50 percent of the fruit of this variety. In our experimental orchard a high percentage of the cracked Stayman has dropped. At least 25 percent of the fruit on the ground under our record trees showed brown-rot infection by the first week in September. Rhizopus rot was also showing on a small percentage of the dropped fruit.

"With the exception of a few plantings of Krummel, the harvest of the peach crop in this section was completed early in September. Yields were very satisfactory and prices higher than was expected earlier in the season. No. 1 Elberta prices ranged from $1.35 to $1.80 per bushel basket with an average for the season of about $1.50. The fruit was of unusually good quality and above the average in size. Bacterial Spot caused no commercial damage on either Elberta or Hale. Peach scab did not damage Elberta and damaged only about 5 percent of the Hale crop in sprayed or dusted orchards. Fully 50 percent of the South Haven fruit was badly injured by scab in orchards where the usual number of sprays or dusts were applied. Early Elberta was a close second to South Haven in showing injury from scab. The loss caused by brown-rot was negligible. The best fruit in the section was in an orchard sprayed five times with zinc-lime with wetable sulphur added to the mixture. The total yield of Elberta and Hale in this particular orchard was in the neighborhood of 20,000 bushels.

"This is the first time in the 11 seasons we have had work at Vincennes that peach trees of all varieties retained all of their leaves until after the crop was harvested. On account of the heavy crop of large leaves and the presence of a sufficient supply of moisture the fruit was considerably above normal size. An Elberta from our experimental plot measured 3-3/8 inches in diameter. Many of the Hale fruits in the same orchard were over 4 inches in diameter."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"At the beginning of the week pear harvesting and packing operations reached the peak for the season," he writes September 16th. Anjou and Bosc varieties were being harvested simultaneously. As usual, these two varieties were in the majority of cases picked while fruit firmness was in the upper half of the 'picking range' according to the Oregon tester.

"Picking at the Medford Experiment Station was started on September 9, and the experimental plots in Block 1 were harvested on September 12 and 13. Anjou fruit firmness ranged between 13.5 and 14.5 pounds on the Magness and Taylor tester and between 22 and 23 on the Oregon tester. Edwin Smith and A. L. Ryall were in town to assist in the storing of representative samples of fruit from the Time of Irrigation and Pruning-Irrigation plots.

"I compared the rate of growth of the fruits of Anjou, Bartlett, and Bosc in a preliminary way during this season, using two trees of each variety under apparently similar soil moisture conditions. During periods of apparently low soil moisture and high evaporating power of the Air, Bosc showed the most rapid fruit growth and Anjou the least growth. These results are in accord with general observations in commercial orchards where Bosc trees show less wilting and larger fruit size than Anjou."

"During the past week daily maximum temperatures have continued fairly high and evaporating power of the air has also been consistently high," he wrote from the pear field station on September 9th. "This weather condition has had a marked effect upon the very large Anjou crop in the Valley. In all orchards on relatively light soil where the soil moisture had not been recently replenished by irrigation, a large amount of sunburning of the fruit occurred. In orchards where 'cork' usually occurs to a slight extent, greater numbers of fruits became affected with this cork condition during the week. In my cork plots very little cork was visible on Monday on summer-pruned trees, but by Friday all fruits on these trees showed cork to some extent.

"This high evaporating power of the air which has now continued for about three weeks has apparently taxed the water supplying power of the roots for Anjou trees in adobe. In soil moisture plots (at the Medford Experiment Station) low in available soil moisture many leaves are turning yellow and many green leaves are dropping to the ground. This leaf condition is in itself ample evidence of extreme tree suffering during hot weather when available soil moisture is below 30 percent of the available capacity but above the permanent wilting percentage. When

FRUIT PRODUCTION

W. W. Aldrich (continued)

this high evaporating power of the air commenced the rate of fruit growth decreased slightly; but when the high evaporating power of the air continued, the rate of fruit growth decreased still more. These conditions gave us an opportunity to determine whether the large leaf area in Old Frequent plot would tax the water supplying power of the roots more than the relatively small leaf area in the Old Dry plot.

"To determine this, three trees in Old Frequent and in Old Dry had 1/3 of their leaf area (and 1/3 of their fruits) removed in early August. This reduction of the top-root ratio had hitherto had no effect upon fruit growth; but during this past week with continued high evaporating power of the air the rate of fruit growth on normal trees in Old Frequent plot was slightly less than for trees in the same plot with a lower top-root ratio. I interpret this to mean that our practice of frequent irrigation to maintain available soil moisture has increased leaf area slightly more than root development."

C. F. Kinman, Sacramento, Calif.

"Some prune growers in the Sacramento Valley commented to me about the slowness in ripening of their prunes," he writes in a letter dated September 10th. "The ripening season has been late for most fruit crops throughout the season in this vicinity and this lateness, together with cool fall weather, is causing concern among growers.

"With the more satisfactory prices that have been received for canning peaches this year, has come a very much increased interest in peach planting in the leading peach growing sections around here. There has also been a revival of interest in new varieties, and a number of them, including chance seedlings, bud sports, and crosses of known parentage, are being watched rather closely by growers and nurserymen."

Elmer Snyder, Fresno, Calif.

"Grape varieties in this locality have ripened somewhat later than an average season and much later than last year, which was an early ripening year. Many raisin type grapes still are unpicked which ordinarily would be either completely dried at this time or at least would be on trays.

"The lateness of the season has resulted in some cases of raisin grapes being picked in an immature condition which will result in a poor quality raisin. In one large commercial planting, Muscat of Alexandria grapes were being placed on trays for drying when the grapes tested only 18 percent sugar.

"There is a possibility of rain damage to drying raisins when the grapes ripen this late in the season."

FRUIT PRODUCTION

George F. Waldo, Corvallis, Oreg.

Writing September 14th he reports that an attempt was made to determine if possible whether the grafting of runners could be used in the transmission of crinkle disease from diseased to healty plants. "It is hoped that a technique can be developed for grafting runners so that a large number of the strawberry selections of the past years' breeding work might be tested in this way," he states.

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"Results of studies on spraying for the control of walnut blight carried on in a Franquette planting near Lebanon, Oreg. further indicate that spraying with bordeaux mixture at the proper time will reduce the incidence of the disease to a negligible amount," he writes for the week ending September 21.

"In this test bordeaux mixture 2-2-50 gave practically as good results as did bordeaux 4-4-50. Furthermore, the use of either an oil emulsion or a light medium summer spray oil with bordeaux mixture did not increase the effectiveness of the spray to any significant extent. Basic copper sulphate 2-100, copper silicate 2-100, and zinc copper bordeaux 2-100, were all not as effective as bordeaux mixture in reducing the incidence of blight on the nuts.

"Filberts are now beginning to fall to the ground. By the end of next week harvesting will be under way.

"The first good rain of the year since the 22d of April fell during the forepart of the week. A total of 1.52 inches of rain fell over a 3-day period at our field station at Aumsville, Oreg."

He had written September 14th: "Field studies carried on during the week indicate that in all likelihood there will be an abnormal amount of blank nuts in the filbert crop in the Pacific Northwest this year. This is particularly true of the Barcelona variety. While it is impossible at this time to definitely state what the exact crop loss in the Pacific Northwest as a whole will be from this cause it is estimated that about 15 percent of the crop may be lost from this trouble. In certain Barcelona plantings it is estimated that as much as 50 percent of the crop will be either blanks or so poorly filled as to affect their market value.

NUT PRODUCTION

B. G. Sitton, Shreveport, La.

"During the last two or three weeks the black pecan aphis has increased to serious proportions in a great many of the orchards in this territory," he writes from the U. S. Pecan Field Station on September 21.

"In some cases 75 to 80 percent of the foliage has already shed and in other cases as much as 50 percent of the foliage is now on the ground. It is rather interesting to note that in some places where the trees have considerable space between them the damage done by the black aphis is considerably less than where trees are rather close together. This is particularly true in one block in the J. H. Fullilove orchard.

"Three years ago a portion of diagonal tree rows were removed and the remaining left without removing any trees. Those trees in the portion which was thinned have retained probably 90 percent of their foliage, whereas the trees in the adjoining block have shed at least 50 percent of their foliage, most of the shed being from the lower branches. In some cases the trees which have lost a considerable part of their foliage carried a heavy crop of pecans and it is quite probable that the quality of the nuts will be impaired by this loss of foliage. A considerable part of the shed in some places is also due to vein spot."

Max B. Hardy, Albany, Ga.

Writing from the U. S. Pecan Field Station and Laboratory on September 28th, he reports that the condition of the pecan trees around Albany in those orchards which had had no care is deplorable. "Trees of the Stuart, Mobile, and Schley varieties are as bare of leaves in some cases as they will be in winter," he writes, "due to the usual factors of foliage diseases, no cultivation, and crowding. Some other varieties under similar conditions, notably Moore, Curtis, Teche, and Frotscher, are holding their foliage well. The trees at the station farm maintain their excellent condition."

"Observations made on trees in our girdling experiments lead to the conclusion that girdling the trunk with a saw cut, removing a ring of bark from the larger branches, or ringing with a wire around the limbs hastens the maturity of the nuts," he wrote September 21. "The effect of girdling on the size of the nuts is not of sufficient uniformity to permit drawing definite conclusions until the crops are harvested. There is an indication, however, that girdling on Moore and Moneymaker increases the size of the nuts, while on Schley it decreased the size.

NUT PRODUCTION AND DISEASES

J. R. Cole, Albany, Ga.

"On Wednesday Mr. Large and I conducted members of the Pecan Club over our experimental plots in the Taylor orchard," he writes from the U. S. Pecan Disease Field Laboratory on September 28th. "Dr. J. J. Skinner was a guest and described briefly the pecan crop in Louisiana and Texas. Thursday some members of our Bureau drove to DeWitt and Baconton and observed the conditions of the orchards in those areas. In the Alley plot at DeWitt the foliage is green and almost free of disease on the trees sprayed with bordeaux mixture 2-1/2-50 and 1-50 zinc sulphate, while the trees that were not sprayed are practically defoliated."

Howard E. Parson, Shreveport, La.

Writing from the U. S. Pecan Disease Laboratory on September 28, he reports: "Notes on the control of leaf spots by spraying have been taken. Some plots received pre-pollination sprays alone, some summer sprays alone, and some received both pre-pollination and summer sprays. Best control of vein spot and downy spot resulted from applying 2-2-50 bordeaux mixture before pollination. The 1-1-50 bordeaux before pollination plus one application of 3-3-50 bordeaux after pollination was second, and 1-50 copper sulphate solution applied both before and after pollination was third in control. Spraying after the first summer application of bordeaux mixture was discontinued because of the increase in numbers of aphis following later sparys.

" Leaf spots of pecan, especially vein spot, have been very serious in local pecan groves this summer. Two large orchards were defoliated early causing new leaves to come out and no doubt also causing the present crop to be lighter than it normally would have been. Downy spot was associated with it, but vein spot attacks the leaves in such vulnerable positions that it could have caused the defoliation without downy spot being present. Much good should result in the control of these leaf spots from orchard sanitation since no overwintering twig lesions are known to occur.

"Black aphids have come into other orchards that escaped complete defoliation from leaf spots. Defoliation from aphids has come late enough so that probably little or no new foliage will come off. No differences could be seen in the prevalence of aphids on the different sprayed plots late in the season. Some help was given Mr. Pierce in spraying small number of trees against black aphids in the Fullilove orchard....Results of spraying against rosette with zinc sulphate in the Fullilove orchard are that its severity has been reduced an appreciable amount even though the applications were not as timely as desired on account of bad weather."

STORAGE SOLVES SURPLUS PROBLEM FOR GARDENERS

"Each year the average gardener has a surplus problem" says a Press Service release commenting on the revised edition of Farmers' Bulletin No. 879, "Home Storage of Vegetables," by James H. Beattie of our Division. "His garden normally produces more vegetables during the summer than he and his family can consume.

"This surplus--of little value in the summer--can be used during the winter in preparing a variety of tasty and wholesome dishes if the extra vegetables are properly stored in cellars, attics, or other suitable places. Storing of vegetables also lightens the annual canning work.

"Beets, late cabbage, carrots, celery, onions, parsnips, potatoes, sweetpotatoes, salsify, pumpkins, squash, and turnips may be stored in their natural condition. Beans of various kinds, including the limas, may be dried and stored.

"A half-acre garden, according to horticulturists of the United States Department of Agriculture, will, if properly cared for, produce enough vegetables for year-around use by the average family.

"Cellars containing a furnace usually are too warm and dry for storing root crops, but a room may be partitioned off in one corner or end of the cellar and the temperature controlled by means of outside windows. Outdoor cellars may be built at low cost."

As Mr. Beattie points out in the foreword to the bulletin, the storing of late vegetables is an economy for those who grow them in sufficient quantity for the needs of the family. To care for the surplus vegetables in many cases requires nothing more than the use of existing facilities in or near the home. Often the late vegetables from a small garden may be stored with no outlay of money.

Of course, where considerable quantities of vegetables are grown it is frequently advisable to construct permanent storage facilities in the form of a storage room in the basement of the dwelling or under an outbuilding or to build an outdoor cellar of wood and masonry. If permanent facilities are not available late root crops can be kept in outdoor pits or banks, requiring no cash outlay except for labor.

The bulletin contains no fewer than 20 figures illustrating floor plans, details of construction and ventilation, completed outdoor storage cellars, banks, pits, etc.

ADMINISTRATIVE NOTES

Financial Statements Beginning this Fiscal Year, monthly financial statements will be sent out at a later date than has been the practice in the past. When the account books were closed on the first of the month, such expenditures as public utility vouchers, monthly expense accounts and others could not be entered and so had to be held for inclusion in the statement of the month following.

We are going to try out a plan now by which the books will be closed on the 10th of each month instead of the first. We feel that this will make your monthly statements more representative of the actual financial condition of your allotment. You can help us a lot in this new plan by making sure that your accounts and vouchers are sent to us PROMPTLY, through your project leader, after the end of each month.

We hope, also, to speed up the payment of monthly expense accounts.

Coal A section of the act of Congress approved August 30, 1934, and known as the Guffey Coal Bill, reads: "Sec. 14 (2).--No bituminous coal shall be purchased by the United States or any department or agency thereof, produced at any mine where the producer has not complied with the provisions of the code set out in Section 4 of this act."

This, of course, means that employees in charge of stations or who otherwise may have occasion to purchase coal should get in touch with the dealer in advance to make sure that he gets his coal from mines complying with the Guffey Coal Act.

Payment by Delivery of Merchandise. Comptroller General's decision A-61131 points out that there is no authority of law for the acceptance of an offer by a debtor of the United States to deliver merchandise in payment of an acknowledged obligation to the United States. This makes it necessary that where through error an overpayment might be made, for example, the amount due be sent to the Treasury Department. We are not permitted to accept merchandise in payment of such moneys due the United States.

Liability Insurance. The Business Office is preparing a statement regarding liability insurance, to be sent to employees shortly with details as to policies, rates, etc. If you do not get a copy soon, apply to the Business office for one.

ADMINISTRATIVE NOTES

Destroying Old Records. In B. P. I. Memo. 850, dated August 27, 1935, Mr. Allanson quotes a memorandum from Mr. Joseph Haley, Chief of the Department's Division of Operation, in regard to the destruction of papers, documents, etc. which appear to have no permanent value or historical interest:

> "A letter has been received from Mr. P. D. W. Connor, Archivist, stating that the National Archives Act requires the Archivist of the United States to transmit to Congress on January 1 of each year, with the approval of the Council, a list or description of papers, documents, and so forth (among the archives and records of the Government), which appear to have no permanent value or historical interest, and which, with the concurrence of the Government agency concerned, and subject to the approval of Congress, shall be destroyed or otherwise effectively disposed of.
>
> "You are therefore requested to submit to this Division as soon as possible a list of such papers as you desire to have reported to Congress."

As we interpret this, it covers everything in the way of correspondence and old records for which we have in the past been asking the Secretary to approve disposal or destruction.

Heretofore it has been the practice of the Bureau to recommend to the Secretary the destruction of old files or other miscellaneous papers which were no longer required and appeared to have no further value. This was done from time to time throughout the year. Apparently this authority is now abrogated and it will now be necessary to include in a memorandum for submittal to the Arhivist recommendations covering the destruction of any papers, correspondence, etc. of no further value.

As in the past, project leaders and field station superintendents will report to Dr. Auchter regarding any papers or records they consider as of no permanent value or historical interest which they desire to destroy or dispose of in some way. Such material should, of course, be held until instructions are received concerning it. We will include the description or list in our annual reports to the Archivist who will notify us of the action to be taken. Such papers can be stored in some safe place at the station for the time being. It is not necessary to send them to Washington unless you are advised to do so.

The point of all this, of course, is that nothing should be disposed of that appears to have permanent value or possible historical interest, until you are advised concerning it. A recent check-up with our project leaders failed to reveal any such material awaiting disposal or destruction now, and we have so advised Mr. Allanson. This is just a reminder for next year!

Vol. 7. No. 20 October 15, 1935

THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., November 1, 1935 No. 21

One Big Family. Jim Wiant, down from the New York City laboratory of the Section of Fruit and Vegetable Handling, Transportation and Storage Investigations, stopped in and cheered us up with kind remarks regarding the NEWS LETTER, intimating that it is helping make the Division into "one big family." This is just what Dr. Auchter wants, and he is delighted that we do work together effectively and harmoniously.

The NEWS LETTER tries to be an instrument of service in connection with this atmosphere of harmony and cooperation. More than ever before large business organizations are devoting time and money to the problem of developing effective team play--getting the various units of the organization to intermesh efficiently while still retaining their independence of action and their individuality. That is our ideal, too, and we strive to serve as a clearing house of information helpful to you. The field reports tell you what is being done by your research colleagues, giving you the benefit of their experience and findings. The prompt publication of official orders, etc. helps oil the machinery and often safeguards your bank account, if any.

Cooperation--that's the corner stone of team play. You know how it works: You have a dollar and I have a dollar--we swap. Now you have my dollar and I have yours but neither of us has been benefitted. But if you have an idea and I have one and we swap, then each of us has two ideas--he has doubled his capital. Which, of course, is why we welcome field reports from more of our workers in order to bring about an even wider exchange of ideas. And we like personal items about changes in headquarters, talks before growers, favorable comments on our work, etc.

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

"Wenatchee is now about at the peak of the harvest season," he writes October 11th. "Delicious apples are practically all off in the Wenatchee district, although the higher elevations still have some on the trees. In general, the Winesaps will be of fine quality, perhaps better than any other variety this year. This is due to better color and worm control. Many of the Delicious trees this year have fallen short of their anticipated quality through lack of color and premature dropping. We have been called upon many times this fall to diagnose the factors responsible for these off-colored Delicious. So far we have been unable to correlate the difficulty with any one factor in all cases. We feel reasonably certain though that mite infestations have been an important contributing cause.

"Just this past week a large orchard in Peshastin and several orchards in the Manson district have had trouble in all varieties with premature dropping and with Delicious, lack of color also. We found the trees to show a severe leaf burning in these orchards. At first we were inclined to look for soil troubles but on closer examination found that the low branches on the trees in the lower areas of the orchard showed more leaf burning than those on the side hills, or where air drainage was more complete. This seemed to indicate very strongly that the injury was due to arsenical burning and the branches near the cover crop, and trees in the lower areas in the orchard were more susceptible to the injury due to higher humidity. It was rather interesting to make this observation as none of these orchards had more than three cover sprays of lead arsenate and no one brand was responsible apparently, nor could it be correlated with any particular type of spreader. This soluble arsenic leaf burn has not been observed in the Wenatchee district proper where the relative humidity is considerably lower.

"In a previous report I stated that we were finding a correlation between reduction in fruit growth and evaporating power of the air and that the evaporating power of the air was correlated positively with daily maximum temperatures. Our later calculations have given us data that have greatly minimized the importance of temperatures as affecting fruit enlargement. Our data now show very definitely that the reduction in average daily growth rate of Anjous in this summer's experiment was caused mainly by air movement. In other words, our average daily maximum temperatures are least important in affecting fruit growth and evaporating power of the air, and that average wind velocities are far more instrumental."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"Visitors at the Medford Experiment Station during the week," he writes September 30th, "included Mr. W. F. Walker, nurseryman from Launceston, Tasmania; Mr. E. Cook, orchardist, from New South Wales, Australia; and Mr. W. A. Schoenfeld and Mr. R. S. Besse of the Oregon Agricultural Experiment Station....

"Bitter pit is already showing on unpicked Yellow Newtown apples. I believe at least one packer plans to store Newtowns loose in lugs with shredded oil paper to prevent storage scald until bitter pit has shown up sufficiently to permit its removal in sorting before packing."

He had reported September 23d: "Research work during the week included obtaining the last of the yield records in experimental plots in commercial orchards and the completion of the total leaf counts of 'special study' trees in plots at the Medford Experiment Station. Average area per leaf for each plot had already been determined. Total leaf area per tree (based on 6 trees) for each of the Time of Irrigation Plots showed a marked reduction in leaf area for plots which have suffered seriously for soil moisture during each of the past four seasons:

Old Dry....(approximately)	900,000	sq. cm.
Frequent Early "	900,000	"
Frequent Late "	1,000,000	"
Old Frequent "	1,600,000	"

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"We attended a conference on the protection of fruits and vegetables in winter transit in Seattle on October 3d," he writes October 8, "and here the carriers demonstrated two different types of thermostatically controlled car heaters. This gave shippers of the Pacific Northwest great hopes of a fairly early solution of their problem of overheating when winter shipments are being protected against freezing. This is a very promising answer to the Department's work on this subject since 1917, which has, since 1927, been given painstaking study by Mr. Mallison and his associates along the lines of 'inside control of car heaters.'

"Fine weather prevailed during September--rather warmer than was good for apple coloring until after the middle of the month, but light frosts by September 26th corrected this condition for late varieties. At present apples promise to have good quality, though postponement of the harvesting pending color advancement may have the usual adverse effect especially if there is a prolonged delay in storage of Delicious, Stayman and Rome Beauty."

POTATO INVESTIGATIONS

C. F. Clark, Presque Isle, Me.

"We have finished digging the experimental plots of potatoes and are now engaged in putting up the material for testing at the different cooperative stations," he writes October 12th.

"Many of the growers in this vicinity have finished harvesting their crop. On the other hand, several of the large growers who were delayed in starting because of prolonged immaturity of the plants still have a large acreage undug....Market conditions have been slowly improving. The price paid the grower has increased from 50 cents to 80 cents per barrel since the last report."

He had reported on September 28th that the greater part of the early maturing potatoes had been dug. "Only a few growers have started to dig the Green Mountain variety as the vines in most fields are still too green to be in suitable condition for digging," he wrote. "Some cracking of the tubers has been found to occur in the immature crop of this variety during the different stages in handling subsequent to digging. It is believed that this condition can be largely prevented by delaying the digging until the vines are dead and the tubers mature.... No killing frosts have yet occurred. This is a week later than the average date of killing frosts at Aroostook Farm. Potato shipments are somewhat behind those of previous years, the total shipments for Maine up to September 26 being 1,128 cars, while on the same date in 1934, 1,537 cars had been shipped. The present price paid the growers is 50 cents per barrel." (As noted above the price had advanced to 80 cents per barrel by October 12th. Ed.)

Growers were digging the Irish Cobbler early in September, the yields, however, being generally reported as low.

KATAHDIN SCORES AGAIN!

The Grand Rapids trade was given its first taste of Katahdin potatoes last week, says a press report. First diggings of the season were brought into the market by truckers, who had no difficulty making sales at 60 cents a bushel, compared with 55 cents for other varieties. The Katahdin is a new white skinned variety developed by the United States Department of Agriculture and introduced in Michigan through the Michigan Experiment Station, East Lansing, and the Lake City Potato Experiment Station. Growers reported the new 'white hope' has grown well this season and yields are better than those obtained from either Russet or White Rurals. After consumers get fully acquainted with the new variety, truckers believe Katahdins will command a premium of 10 cents a bushel or more over Russet Rurals and other rusty skinned varieties.

--Daily Digest, October 19, 1935.

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

Writing from the Ozark Fruit Disease Laboratory September 30th, he says: "Precipitation during the month of September totaled 2.64 inches--a deficiency of .88 from the normal. From the 15th to the 24th we experienced the highest day temperatures ever recorded in this section for September. On the 24th a maximum of 91 degrees was reached. Following a rainfall of 2.14 inches on the 26th, temperatures dropped rapidly. The first frost was recorded on the night of the 28th, with no damage resulting. The drought and high temperatures of September caused a reduction in the size of apples. Jonathan and Delicious ripened very rapidly and many dropped prematurely.

"Prices for apples have been generally very low. No. 1 Grimes and Jonathan have been selling for 65 to 80 cents a bushel. From present indications, good quality Ben Davis will not sell for more than from 40 to 45 cents a bushel.

"Last week the check plot in the apple scab experimental plots was harvested. The results showed that 99 percent of the drops and harvested fruit combined was scabbed. This week the pear leaf spot experimental plots were harvested. From the results it is apparent that the copper phosphate mixture was very effective in the control of this disease."

John C. Dunegan, Fayetteville, Ark.

"The work of harvesting the Oliver variety count trees was delayed by the rain and did not get started until the 10th and was completed on the 12th," he wrote September 14th. "The check plot clearly indicates how favorable the environmental conditions were for the apple scab fungus during the early part of the 1935 growing season. The Oliver count trees in the check plot produced 4,302 apples and 4,301 of these were infected with scab. The results in the other plots have not been computed but the indications are that copper phosphate was not particularly effective against the scab fungus, although it appeared to give good results against the blotch fungus. The final conclusions will be based on the results obtained from the Ben Davis variety which will not be harvested for another three weeks."

October 12 he wrote: "Practically the entire week was spent in the experimental orchard counting and examining Ben Davis apples from the various spray plots.....It will be some time before final results are computed but I may state in passing that the amount of scab on the plots sprayed with copper phosphate is not as great as it appeared it was going to be, and furthermore the finish of the apples in the plots sprayed with this material is infinitely superior to the finish of the fruit which was sprayed with bordeaux mixture."

FRUIT DISEASES

Leslie Pierce, Vincennes, Ind.

"A period of high temperatures beginning September 14th and continuing for 12 days caused a heavy drop of apples in all of the orchards in this section," he reports October 9th. "Grimes, Jonathan, Delicious and Turley were the varieties most affected. Many trees of the varieties named dropped 50 percent of their fruit before the crop could be harvested. The total absence of rainfall during this period of high temperatures was a contributing factor in causing the fruit to drop. The total precipitation for the month was 2.19 inches, a departure from normal of -1.56 inches.

"On account of the premature ripening of the fruit due to high temperatures and lack of moisture, probably 75 percent of the apple crop in the section had been harvested by the end of September. The apple market was glutted and prices were the lowest ever experienced. Picked fruit, principally Grimes, sold in bulk for as low as 40 cents a bushel. Washed and packed Grimes sold from 85 cents down to 65 cents per bushel basket. Red varieties, Jonathan, Delicious and Turley, were priced at from 75 cents to $1.00. Even at the low prices asked a market was found for only a small percentage of the crop. All of the space in the local cold storages was contracted by the middle of September. The entire crop of late varieties such as Rome and Winesap will be placed in cold storage, if sufficient space is available.

"Apples of all varieties later than Duchess showed good size, but the color was poor on red varieties harvested during the last three weeks in September. Most of the color taken on the first week in September was lost during the extremely hot weather later in the month. The fruit was unusually free from insect injuries and the loss from scab was probably not more than 10 percent of the crop."

H. F. Bergman, Amherst, Mass.

Reporting on the work at the Cranberry Disease Field Laboratory, East Wareham, Mass. for the week ending October 5, he says: "Most of the time this week we have been examining cranberries from our experimental spray and dust plots. None of the berries examined so far show as much rot as in very bad years but in most instances are showing more rot than last year. In one check lot more than 25 percent of our sample spoiled within two weeks. In some plots on the State Bog where we tried a combination fungicide and insecticide consisting of 40 parts of sulphur and 60 parts pyrethrum powder we found that the yield was consistently less on dusted plots than on checks and the amount of rot higher. This, of course, does not look very well for sulphur as a fungicide on cranberries."

DISEASES OF ORNAMENTAL PLANTS

Frank P. McWhorter, Corvallis, Oreg.

You will perhaps recall that some five or six years ago F. P. contributed a "weekly" report to the NEWS LETTER? Well, he is back again with what he labels "Weekly news letter for the middle week in October, 1935." This will enable you to fix the date accurately. He says:

"Recent news letters*, seasoned with weather, have dried me into a pen pusher. From their pages I have learned all the unusual quips of climate here and elsewhere. This requires considerably study since the exactness of the weather minded is appalling. For example, let us take the case of Bethlehem, La.**where 1.761 inches fell during the week ending October 1. Interpreting and integrating we have: The integral is the precipitation--1 inch; the first decimal is the number of showers--7; the second decimal lists the fogs--6 fogs; and the third decimal is California sunshine***; that is to say 1, or not much. With the help of this key, simple arithmetical maneuvers, and the plant misbehaviors recorded in our newsletters* the weather during the past few weeks may be recapitulated thusly; The precipitation is more and more falling less and less. Soon the Scotch will be asking each other: 'Have you a little reservoir in your home?' But this is October Oregon and it is raining while I write.

"Mr. Millsap has been burying bulbs in acres of beds between sheets of sandy loam, awaiting the call 'Wake up, wake up, little Butter Cup!' which with our sordid viewpoint, brings hope for new virus expression. In fact, we are planting about the largest bulb plot we have ever had. "And the bulb industry has been large. Recently for spicing an address to the Association of Park Commissioners of the United States, who met in Portland, I obtained through Inspection Offices some fresh figures on the number of narcissus in the Northwest. From these figures I computed that should the Park Commissioners vote to build a parkway between here and the moon, our two States could furnish enough narcissus bulbs to line the parkway three to a rod. No definite action on this subgestion was taken by the Commissioners at the time, but several of them suggested they would be willing to test free samples of our wonder bulbs in their very own parks. I left them with the impression that there are right smart bulbs here in the Northwest. I was, therefore, surprised to learn that every important grower has sold all of every important commercial variety he wished to sell or that he had grown 'fit to sell.' This statement is true for both States and is true for narcissus, iris, and tulips. We are sorry to say that the quality of the bulbs, especially on a size basis, is below that of 1934. Fortunately I have only to review recent news letters* and climatological explanation for the size decrease."

*Not our News Letter; he always capitalizes its name. **Shhhhhh! Frank--Bethlehem is in Palestine! ***W. R. Barger, please note. JAF

NUT PRODUCTION AND DISEASES

B. G. Sitton, Shreveport, La.

Writing from the U. S. Pecan Field Station on October 12th he says: "Over this entire territory a large proportion of the trees have lost a great part of their foliage. Some of them have been defoliated so long that new growth has started. Apparently there was considerable vein spot present on most of the trees, but I believe the defoliation was for the most part caused by attacks of black aphids. This is the first year in which black aphid has been so widely distributed and caused so much damage in this territory, but the damage has been increasing for the past four years and now has reached such serious proportions that it seems that means for control must be considered in order to insure economical production of pecans.

"In most of the orchards visited the quality of the pecans will be impaired somewhat, although it is vetter than would be expected considering the conditions of the foliage. Most of the trees are carrying a large crop of pecans this year and it is quite likely there will be no crop next year."

He had written September 28th: "The pecan plantings in Oklahoma consist entirely of trees along the streams, either natives or natives top-worked to named varieties. In the top-working which I saw there this week, there is much need for improvement in methods. Practically every top-worked tree was cut back so severely that there is little chance for the tree to make a top within a reasonable time so as to be profitable and in many cases the trees were cut back so severely that they will probably be destroyed by wood rot within a few years. Apparently the main problem in the Oklahoma territory is connected with top-working operations and judicious training of the trees."

C. E. Schuster, Corvallis, Oreg.

"Filbert harvesting on our projects was completed during the past week," he writes October 12th. "Commercial harvesting will be finished within a short time. The crops are turning out heavier in some cases than the growers had anticipated. In other cases the crops are light, with a considerable number of blanks.

"The walnut harvest is just about ready to start. A few seedlings have been harvested and dried but the bulk of the crop is waiting for a rain to bring it down. Husks are cracked but we have had dry weather until just a few hours ago, so that the nuts are being held in the husks. The next week will see harvest on in full blast."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The leaves in many of our walnut orchards in Oregon are turning yellow prematurely and great numbers are now falling from the trees," he writes October 12th. "Normally the nuts fall before the leaves, but this year the order has been reversed.

"In most cases the protracted drought of the current season appears to be responsible for the premature yellowing and defoliation. However, there are certain exceptions which are very difficult to explain. Thus, in one irrigated orchard near Lebanon, Oreg., the leaves turned yellow prematurely and are now falling quite rapidly. The explanation for the yellowing and premature dropping of the leaves in this particular case is not so clear. No parasitic disease could be found on the leaves which might account for the premature defoliation which has occurred. It is thought that probably a water-logging of the soil incident to an over-dosage of irrigation water might be the responsible factor in this particular case."

He wrote October 5th that filberts were being harvested in practically all sections of the Pacific Northwest.

Geo. P. Hoffman, Meridian, Miss.

Writing on October 5th he reports: "In spite of a very dry and unfavorable growing season, it is gratifying to report that the pecan trees in our experimental orchard have made considerable new and late growth. Observations made on trees sprayed with zinc sulphate (1 pound of zinc sulphate in 50 gallons of water) in comparison with a few isolated and unsprayed trees left for checks, reveal remarkable results. The new growth developing since the zinc application is a rich dark green color on the sprayed trees while there is at this time little evidence of new foliage and almost 100 percent defoliation in the unsprayed trees."

ADMINISTRATIVE NOTES

Mimeographed Circulars, etc. Apparently some of our workers have overlooked the fact that material for circulars etc. to be mimeographed should be approved by the Chief of Bureau. And this approval must be definitely secured before the stencil is cut, as some changes in the material are nearly always required and unless these are of a very minor character the stencil must be destroyed and a new one cut.

ADMINISTRATIVE NOTES

Travel Authority — In a recent ruling on traveling expenses, travel orders, etc. Comptroller General McCarl has had to rule again on a case where an employe exceeded the authority granted in his letter of authorization, and consequently cannot be paid for the travel performed and must refund to the United States the amount of the cost of the transportation requests used in the unauthorized travel.

This man happens to be an employee of another Department, but his experience emphasizes the necessity for your heeding our often repeated warnings that you must not travel to points not included in your letter of authorization, make purchases which are not authorized, nor exceed the amount provided on the letter. A failure to keep in step with these regulations and restrictions can mean only one thing--that some day you will be left holding the bag!

Emergency Purchases. — The Comptroller General has ruled again, too, on the matter of emergency purchases, emphasizing the fact that all purchases made on the plea of emergency conditions are going to be severely scrutinized from now on. This decision, for example, points out that such conditions as "cold weather in the northern part of the United States during the winter" are not to be considered as emergency conditions. Such conditions are to be expected, and articles that will be needed for such weather should be purchased sufficiently in advance to allow ample time for obtaining bids or quotations on a competitive basis. Just because conditions develop that should normally be expected does not authorize any one to proceed with making a purchase on a pretense of exigency.

Medical Treatment, Inoculations, etc. — Still another recent decision states that under no circumstances will payment be made for medical treatment or inoculations for fevers, etc. without prior approval, based upon a showing by a qualified authority such as a medical officer having knowledge of the facts and conditions exisiting at the time, of the need in connection with the public service for such treatments.

This decision, of course, does not conflict with the rules of the Employee's Compensation Commission, as it refers primarily to inoculations for fevers, etc. where employees are required to work in regions where such illness is prevalent. The decision cites former rulings to the effect that employees are to qualify at their own expense for the positions to which appointed.

ADMINISTRATIVE NEWS

Automobile Oil Contracts. So many stations avail themselves of the saving made possible by purchasing automobile oil under the Navy contract, that we believe the following information may prove useful: The Navy contract, of course, does not list the various grades of lubricating oil in the terms generally used by oil companies or filling stations, therefore a few months ago a circular was issued giving the Navy symbol numbers (as shown in the contract bulletin) and the corresponding SAE numbers, as follows:

Navy Symbol	SAE Number
1075	10-W
3050 and 2110	20-W
3050 and 2135	20
3065 and 2190	30
2250	40 (light)
3080.....	40 (heavy)
3100.....	50
3120.....	60
3150.....	70

In placing orders with the contractors it would be desirable to give not only the proper symbol, contract item number, etc., but to indicate the model, make and year of the car for which the oil is to be purchased.

Remember, too, that the containers are covered under a separate item in the contract and must be paid for.

Repairs to Borrowed Equipment. In a decision dated October 3, 1935, A-64684, the Comptroller General points out that it is the established rule that where equipment is loaned for use in connection with a particular Government work the appropriation involved is available for repairs to such equipment to the extent that such repairs are necessary for the continued use of the equipment on such work, but that such appropriation is not available for repairs after such use is terminated, for the purpose of returning the equipment in good condition.

Remember that: You can pay for repairs to borrowed equipment if the repairs are necessary to enable you to use the machine or equipment in connection with the work for which borrowed; but it is not permissible to make repairs, etc. after the use is ended, merely to return the equipment in first-class condition.

ADMINISTRATIVE NOTES

Airplane Travel. The following excerpts (Roy Gillette found that word in the dictionary) from Comptroller's Decision A-62385, should be considered by all persons contemplating official trips by air;

"The lowest first-class transportation over the usually traveled route between the points involved has long been established as the basis for the reimbursement of Government officers and employees for expenses incurred on official travel. In order to authorize the use of a more expensive form of transportation, there must be more than a mere showing of the expedition of Government business. There must be shown some special need therefor--some emergency or exigency of the service. 9 Compt. Gen. 354: 10 id. 201."

"An officer or employee of the Government who is ordered to perform official travel and who on his own initiative decides it to be in the public interest to travel by air is not entitled--in the absence of a clear showing as to the need, from the Government's standpoint of the use of the more expensive means--to reimbursement for the cost of such air travel, but is entitled only to the cost of transportation by the lowest first-class usually traveled route between the points involved, but where an officer or employee is directed to perform official travel by air, no discretion being given him as to such travel, he will be reimbursed for the cost thereof, or the carrier paid therefor if the transportation is furnished on a transportation request clearly calling for such means, and if sufficient explanation is not furnished showing an exigency or emergency requiring the use of such transportation from the Government's standpoint, the excess cost of such transportation should be collected from the person directing the travel."

Typewriters Through the splendid cooperation of our workers, especially in the field, we have succeeded in mapping a very accurate record of the location of all our typewriters. A few, however, are still "among the missing." Will you check over your machines to see if you have any of the following--and report to the Business Office?

CORONAS 6-Mo-3793 and 2-K-05893; L. C. SMITH 497224 and 958145; and UNDERWOODS Nos. 752694-5, 990795-5, 993366-5, 1064129, 2093088-5, 2340211-5 and 2031825.

Leave Slips Please send your leave slips through your project leader, not direct to Dr. Auchter or to the Business Office.

ADMINISTRATIVE NOTES

Revenue Legislation. Mr. Gillette has recently sent out a Division memorandum concerning the revenue legislation passed in the closing hours of the last Congress, revising the Revenue act of 1932. One special provision reads:

> "No tax shall be imposed with respect to the sale of any article, specified in the Revenue Act of 1932, for the exclusive use of the United States, any State, Territory of the U. S., or any political subdivision of the foregoing...."

This amendment, effective on and after October 1, 1934, makes it necessary for you to deduct the amount of the Federal excise tax from the purchase price of articles enumerated in the Revenue Act--gasoline, sporting goods, radio sets and parts thereof, matches, automobiles and motorcycles and parts thereof, jewelry (including clocks and parts thereof, field glasses, binoculars), furs, lubricating oil, firearms, grape concentrate, syrup, malt extracts, mechanical refrigerators and parts therefor, toilet preparations (including petrolatum), cameras and lenses.

It is imperative that any member of the staff who has occasion to purchase any such items satisfy himself that the price does NOT include ANY TAX. In soliciting quotations (by mail) as a basis for a purchase, the following paragraph should be included:

> "Attention is called to Section 401 of the Revenue Act of 1935, approved August 30, 1935, exempting from excise taxes certain articles for the exclusive use of the United States. Such taxes should not be included in your price."

In obtaining oral quotations the dealer's attention should be called to the fact that no taxes can be included in his price. If the condition arises where it is necessary to order articles by mail before prices can be obtained, the paragraph quoted above should be included in the wording of the order. A statement written, typed, or stamped on the face of the voucher to the effect that the prices DO NOT include any State or Federal tax, will be acceptable. In case it is necessary to issue requests for bids the following paragraph goes in the specifications:

> "Attention is called to Section 401 of the Revenue Act of 1935, approved August 30, 1935, exempting from Federal excise taxes certain articles for the exclusive use of the United States. Such taxes should not be included in your bid price."

If you are called upon to issue a tax exemption certificate to service stations or dealers, a certificate such as your gasoline State tax exemption certificate can be revised to cover "Federal Excise Tax" and given to the dealer.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., November 15, 1935 No.22

Thanksgiving A man attending an agricultural convention in Canada stopped at the desk of a night clerk at a hotel in Ottawa, and announced that he was leaving for home the next morning. He wanted the clerk to tell him a good riddle to pass on to the folks back home. "Well," said the clerk, after a moment's thought, "my mother and father have a child. It isn't my brother and it isn't my sister. Who is it?" The visitor was dazed. "My word!" he exclaimed, "What a facer. I give it up. Who is it?" The clerk leaned across the desk. "It is I," he explained, solemnly. Shortly after his return home the visitor had an opportunity to try the riddle on his friends. "My mother and father," he said, "have a child, and it isn't my brother and it isn't my sister. Who is it?" They gave it up. "I thought you would," he said. "I never would have guessed either. It's the jolly old night clerk at the hotel back in Ottawa."

As a riddle that is fair, but I have a tougher one. Because of the pressure of work in connection with shifting offices the last issue of the NEWS LETTER slipped through without the usual careful (?) proofreading. And the distressing thing is that the issue came out with fewer typographical and other errors than the average. Why? No, no, you are wrong--proof was not read by the Ottawa hotel clerk. It just means that the Addressing, Duplicating and Mailing Section did its usual high-class job. So, instead of waiting until November 28, I'm celebrating Thanksgiving here and now because of the cooperation of that Section. Without it, the NEWS LETTER would suffer terribly in appearance--and I mean that goes double--in looks and in time of distribution.

For those things we have received--and for those we hope to continue to receive--thanks!

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

C. O. Bratley, New York City.

Writing from the Market Pathology Laboratory on October 22, he says: "It is well known that many of the Bosc pears if sold on arrival in New York never acquire the highest flavor and best consistency. For the past two or three years this has been overcome by partially ripening the pears before selling. Ripening rooms were located in warehouses in Jersey City, which necessitated reloading the pears in cars for shipment to the auction in New York City.

"Starting the first of October, the Pennsylvania Railroad has furnished this ripening service at the auction-pier side for 4 cents a box. An ordinary insulated lighter of 10-car capacity was converted into a ripening room by lining it with 1/2-inch asbestos sheeting (an insurance requirement). Heat is furnished by steam pipes connected with the heating system of the pier. The air is kept moist by evaporation from the lighter floor which is kept wet, and by a single steam jet. The pear boxes are stacked on floor racks and are stripped with 1-inch stripping. Large electric fans at various points in the lighter circulate the air. Temperatures between 60 and 70° F. are maintained by manual control.

"Pear cars are ferried across the river on arrival and if ripening is necessary the fruit is hand-trucked across the pier and into the heated lighter. Depending upon the maturity at arrival, Bosc pears now require from 2 to 4 days in the ripening room. When ripened sufficiently they are hand-trucked directly to their display positions on the auction pier."

Edwin Smith, Wenatchee, Wash.

"The dropping of apples has caused some concern," he reports October 26th. "In Delicious this was associated either with mite infestation or soil conditions. With stayman the postponed season of harvest and frosts probably is the cause. We may expect serious dropping of unpicked Winesaps on account of frosts which started the middle of October and increased in intensity so that apples froze on the trees sufficiently to interfere with picking during the morning of October 22 and on subsequent mornings during the past week. This has made ideal weather for operating common storages in which temperatures of 40 to 45° are being secured. The days have been bright with moderate to low temperatures."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Crop Losses from Cold. In his report for October 27-Nov. 6 period, Edwin Smith gives us some details regarding the effects of the first serious blast of winter from the Arctic--a blast that means a $10,000,000 loss in Pacific Coast crops according to Associated Press reports. Ruin was spread in fruit orchards and vegetable fields of Washington, Oregon, Idaho and California. Greatest damage in the Northwest was to apples and potatoes. In California, according to the report, tomatoes still in the fields were wiped out. Peas, except in the Imperial Valley, were 50 percent ruined. Considerable damage also was reported to the California grape and cotton crops. All this is summarized from the press reports, by the Daily Digest of the Department. Now, we'll let Ed tell his story:

"During the period covered by this report, Mr. Ryall and the writer have had much of their time taken both in making observations of fruit and in furnishing information to growers and shippers with respect to fruit subjected to low outside temperatures from October 29th to November 5th. The apple industry of the Pacific Northwest was wholly unprepared for this cold wave and an emergency existed.

"Frosty nights had prevailed from October 15th to 21st. The freezing of apples on the trees was severe enough to prevent apple picking during most of the forenoons. This slowed up harvesting operations tremendously and resulted in a much greater volume of fruit being on the trees when the first heavy freeze came on the night of October 29th than otherwise would have been the case. On the 30th and 31st fruit remained frozen on the trees all day and, of course, no picking operations took place except in a few insignificant instances where frozen apples were harvested.

"At the Van Valkenburg orchard a minimum of 19° was recorded during the night of the 29th; on the 30th, maximum 29°, minimum 19°; 31st maximum 31, minimum7; Nov. 1, maximum 34, minimum 5; Nov. 2, maximum 37, minimum 20; and Nov. 3, maximum 37, minimum 25.

"At 10:30 a.m. Nov. 1st apples on the trees had a core temperature of 16°. The days were bright and when the sun hit this fruit thawing took place and by night juice was running from worm stings and calyx tubes with icicles forming from apples that night.

"Picked fruit, stacked in orchards and covered withpaper, at a similar location, was frozen in the tops of boxes and along the sides or at exposed surfaces. The temperature of the tissue was near the freezing point, ranging from 27 to 29°, with exposed fruit going as low as 23°. Boxes of apples stacked in barns were in slightly better condition. Boxes uncovered with paper froze solidly but temperatures held up near the freezing point except in exceptionally cold locations."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith reports on cold damage. (continued)

"With 7° above zero on the night of the 31st and clear, cold weather predicted for several days ahead, hauling of frozen or partially frozen apples started on Friday and continued over Sunday. This was not generally recommended though we stated that owners of fruit had to decide for themselves - if they hauled to cover they might expect a large percentage of bruised apples; on the other hand, if the fruit was given continued exposure to temperatures as low as 5 or 7°, a total loss might ensue.

"With the abatement of the weather this week, it appears certain that fruit remaining on the trees is a total loss. Various estimates of this have been given. The Wenoka organization has estimated that they have 121,000 boxes on the trees - a total loss. Their tonnage possibly represents 8 percent of the North Central Washington production, which would indicate 968,000 boxes unpicked. As this organization has heavy tonnage at Peshastia, Chelan, Pateros and in Okanogan County, their unpicked tonnage may be higher than the average. Yakima had less fruit on the trees and more hauled to storage.

"A surprisingly small percentage of Winesaps had been packed prior to the freeze. Possibly as much as 75 percent of the Wenatchee Winesaps were unpacked and mostly exposed either in boxes in the orchards, in barns or on the trees. No good estimate of the loss of the picked fruit can be given until packing operations have gotten under way, which will not be for another 10 days.

"One packing house which had partially frozen Winesaps hauled from Palisades last week stated that the fruit had recovered 100 percent, and started packing Monday. On Tuesday they shut down because the sorters left so many bruised apples in the boxes that the inspectors refused to certify it. Generally speaking, we expect quite a good recovery of this fruit as far as flesh color is concerned. Much of it, though with many solidly frozen apples in the box, did not have flesh temperatures much below the freezing point of the variety.

"However, boxes exposed to zero temperature in certain bad locations, tops of boxes exposed to warm sunshine during November 1, 2 and 3, and fruit which was roughly handled while frozen are already showing serious injury.

"We have issued a warning about packing fruit before injury becomes apparent, and also about segregating post-freeze pack from the pre-freeze pack, and for this as well as all during this period, Diehl and Wright's publication, "Freezing Injury of Apples," has been our bible."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Solomon, in a rather widely circulated book, has something to say of the strangeness of the ways of a man with a maid. It would have taken the entire book to discuss adequately the ways of a maid with a man. For example, there was the girl who refused a suitor with the statement that she would not consider marrying a man who did not have at least one thousand dollars. He met her at a party some weeks later and she brought up the matter after some general conversation and wanted to know how much he had saved. "Eleven dollars," he said. "Well," she remarked with a blush, "I guess that's near enough."

I don't know just what would be considered the supreme compliment to one of our publications, but I have found something which appears to me to be near enough. Economic Series Bulletin No. 25 of the Ministry of Agriculture and Fisheries (London), "Vegetable Marketing in England and Wales," pays us the compliment of accepting and using our figures in connection with the storage of vegetables, etc., quoting quite liberally from Department Circular No. 278, "The Commercial Storage of Fruits, Vegetables, and Florists' Stocks." This publication was prepared by Dean H. Rose, R. C. Wright and T. M. Whiteman of our Division. If these gentlemen are in the house, will they please arise and take a bow--especially R. C. Wright, since the quotations are from the section on vegetables, prepared by him. As Daniel Webster--or was it Henry Clay?--once remarked, who wouldn't rather be Wright than President?

Circular 278, first issued in 1933 and slightly revised a year later, presents a series of brief summaries of the essential average storage requirements of most of the more important varieties of fresh fruits, vegetables, cut flowers, and certain other perishable commodities which enter the market on a commercial scale. It has found a very useful place for general practical reference, especially since it carries a reference list of more than 32 publications on the general subject treated.

As pointed out in the quotations by the Ministry of Agriculture and Fisheries bulletin, the relative humidity of the air in storage rooms has a direct relation to the keeping quality of the products held in them. If it is too low, wilting is likely to occur in most fruits, vegetables, cut flowers, etc.; if it is too high it favors the development of decay especially in rooms where there is considerable variation in temperature.

For most fruits that are stored commercially the general statement can be made that a relative humidity of 80 to 85 percent gives the best results; for leafy vegetables and root crops, 90 to 95 percent.

NUT PRODUCTION

C. L. Smith, Austin, Texas

Writing from the pecan station on October 19th, he reports: "At Austin analytical work on storage of pecans was carried on during the week. Smith made a trip to several orchards within a hundred miles of Austin to study defoliation conditions.

"The majority of varieties and most seedlings have been badly defoliated in groves visited and as a consequence a large percentage of the nuts will be poorly filled. The cause of such widespread early defoliation is not yet known. There seems to be some correlation of this condition with the heavy rainfall in September. In some groves varieties have scabbed badly and in some cases black aphis infestation has been significant; the defoliation, however, cannot be ascribed wholly to these two causes. A tremendous crop of nuts will be harvested, with the price at present for average seedlings ranging around 4 cents per pound."

Max B. Hardy, Albany, Ga.

"In most orchards the varieties which normally ripen about two weeks apart are all ripening about the same time this year," he writes from the U. S. Pecan Field Station and Laboratory on October 12. "The More variety is ripening its nuts at about the normal time, but the other varieties are ripening much earlier."

Geo. P. Hoffmann, Meridian, Miss.

"Pecans of the Stuart and Success varieties are rapidly ripening," he writes October 12, "and growers generally seem to feel that yields will be somewhat better than earlier estimated. The size of the nuts has been considerably reduced by the very dry summer, but it is generally thought that the nuts of the Stuart and Success varieties are well filled.

"Many of the less well cared for groves in this section serve as excellent but yet pitiful demonstrations of 'the right and the wrong way' as the neglected trees have little to no foliage and fruit and the presence and damage of black aphid is the worst in several years.

"Installation of the machinery and cork insulation for the cold storage units is progressing in a satisfactory manner. There is much detail in connection with the installation, however, and considerable time must be devoted to following up construction.

"During the week ending October 12th, continued dry weather and cool nights necessitated further delay in cover crop seeding."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The first killing frost of the season occurred during the past week," he writes for the week ending October 26. "Temperatures dropped to a minimum of 33° F. in some localities in western Oregon. Approximately .5 of an inch of rain fell during the forepart of the week at Corvallis. Snow fell in the Cascade Mountains.

"A large part of the 1935 walnut crop has been harvested during the past week and only clean-up pickings remain in the majority of the plantings."

He had written for the week ending October 19th: "Reports have been received from certain walnut processing plants that the crop of walnuts now being brought in is not up to standard in quality, there being a large percentage of light weight, partially shriveled nuts. If such is the case over the whole of the valley our prediction of a poor quality walnut crop made early in the season will be sustained.

"Considerable precipitation has occurred in the Pacific Northwest during the week just past. This rain has expedited the walnut harvest as it caused the husks to crack and the nuts to fall."

C. E. Schuster, Corvallis, Oreg.

Writing on October 26th, he says: "Harvesting of walnuts in the experimental phases has been completed. Reports from the dryers indicate that it is taking a third longer and sometimes twice as long as it did a year ago to dry the walnuts. They are reporting dry-outs as high as 45 percent... We were in Douglas County 2 days this week getting the final moisture samples. All the orchards that we worked in seemed to be almost completely dry 6 feet down except for the top soil which was wet by a recent rain."

FRUIT DISEASES

H. F. Bergman, Amherst, Mass.

"On one bog of Early Blacks on which spraying and dusting experiments were carried out the reduction in rot to October 15 in plots sprayed twice with 5-3-50 bordeaux is very outstanding as compared with dusted plots or checks," he writes in the report of the Cranberry Disease Field Laboratory for the week ending October 26th. "On sprayed plots the amount of rot does not exceed 15 percent and is often less while on dusted plots the amount of rot varies from 25 to 50 percent. Dusting showed very little control as compared with adjacent check plots. Our tests on the amount of copper in residues on the leaves are exactly in line with these results."

FRUIT DISEASES

H. F. Bergman, Amherst, Mass. (continued)

"Some of the samples were in very bad condition, several from one bog running 50 percent or higher of rot," he writes October 19, commenting on samples of cranberries from his spray and dust plots for the first storage tests of the year--he had 107 samples to go through. "These berries when picked about a month ago appeared to be in very good condition, but have declined rapidly in storage.

"We found in berries from another bog where dusting experiments had been carried on that there was in nearly all instances more rot in the berries from dusted plots than from the adjacent checks. I have no explanation for this, but it is certain that dusting vines when dry has little or no fungicidal value. Two applications of bordeaux were quite effective on all bogs where it was used."

He wrote October 12: "Nearly all the growers have now finished picking but a few still had some berries out. There have been some very heavy frosts this week but as most of the bogs were flooded very little damage has been done."

G. A. Meckstroth, Willard, N. C.

Writing from the Coastal Plain Station on October 26, he says: "The laboratory equipment used in connection with the investigations of strawberry diseases at Chadbourn, N. C. has been moved to the Coastal Plain Station at Willard, which has been designated as my permanent headquarters.

"I made a trip to Chadbourn on October 8 to look after the packing and loading of the laboratory equipment. The extensive cultural and breeding experiments and selection tests with strawberries being made by Dr. Darrow are located on the Station farm and will be available for closer study insofar as they are related to the strawberry disease problems. Grapes and other small fruits such as blackberries, raspberries, dewberries and blueberries will be available for study."

HORTICULTURAL FIELD STATION

A. C. Hildreth, Cheyenne, Wyo.

"The week was marked by unsettled weather and frequent light snow flurries," he writes for the week ending October 26th. "The Cheyenne Weather Bureau reports that their low temperature of 7 above the night of the 22d was the lowest ever recorded so early in the season. The last of the ornamentals succumbed to the cold snap, altho Chinese elms still retain their foliage perhaps due to absence of strong winds, as this week has been unusually calm."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"The harvesting of the Northwest Arkansas apple crop, estimated at only 25 percent of the normal crop for the section, is nearly completed," he writes October 19th. "Shortage of the crop this year is attributed by most of the growers to last year's drought and the cold, rainy weather during the early part of 1935. Prices received by the farmers of Washington county have ranged from 40 to 75 cents a bushel. The average price probably was about 50 cents.

"Car load shipments in Washington county to date have been 11 cars from Springdale and 2 from Fayetteville. Probably four times that many have been trucked out, it is estimated. No rail shipments were made from Lincoln, Farmington or Prairie Grove this season. Springdale expects possibly one or two more cars to be shipped before the season closes. The Benton county crop also is short this year, with Gravette probably the largest shipping point with about 25 cars out by rail. Rogers, Bentonville and Lowell have shipped about 2 rail cars each, and Gentry and Siloam Springs together about 20 cars, according to reports."

ADMINISTRATIVE NOTES

Use ink--not pencil!

For your information and guidance there is quoted below excerpt from a decision rendered by the Comptroller General September 20, 1935 (A-62421) on the subject of signing official documents in pencil.

> "In addition to the dangers involved, there is a very practical objection to lead pencil signing of official documents, in that in the handling thereof, incident to examining, paying, sorting, and filing, the signatures and data may become so indistinct as to be illegible. Lead pencil signatures should not be accepted except in those rare cases where it is impossible to secure the required signature in pen and ink."

It will be appreciation, therefore, if you will call the attention of dealers and others to the above decision in order to make sure that vouchers will be signed in proper form, in ink, for presentation to the Disbursing Officers. The Division of Disbursement, Treasury Department, has refused to make payment in instances where the claimant has signed in pencil. Where it is impossible to secure the required signature in pen and ink, the voucher should be accompanied by a statement explaining why.

And, P.S., be sure to sign your own vouchers, expenses accounts, etc. in pen and ink--or at least with ink!

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

Writing of an automobile trip to Portland and Corvallis the week of October 21, he says: "In Goshen I visited an apple grower who for several years has determined the time of picking from the number of days after full bloom. This grower, Mr. H. S. Merriam, told me that one year, when warm September weather was delaying the coloring of Jonathan, he picked earlier than his neighbors because the usual number of days since full bloom had elapsed and had much better Jonathan keeping quality than his neighbors. He had a very high opinion indeed of this suggested criterion for apple maturity by Magness, Diehl and others.

"Inasmuch as Mr. R. K. Norris, field manager for the Pinnacle Packing Company of Medford, has been using his own data upon the period between bloom and harvest for forecasting the late sprays and starting of packing for pears, I have become more and more impressed with this criterion for determining the proper picking of pears. A rather hurried study of the blooming dates and pressure test records for Bartlett and Anjou at the Medford Experiment Station during 4 years give encouraging data:

Year	Variety and days from bloom to proper harvest.			
1932	Bartlett	130	Anjou	153
1933	"	135	"	150
1934	"	123	"	153
1935	"	135	"	154

When the earliness of 1934 and the lateness of 1933 are borne in mind, the consistency of the data is encouraging."

He had written October 14th: "Picking of Winter Nelis pears and Yellow Newtown apples was quite general during the week. In most cases picking of Winter Nelis was started when the firmness, according to the Oregon tester, was between 26 and 27 pounds. Since the recommended 'picking range' is 24 to 28 pounds, it is evident that picking was started while on the green side of the optimum range. This tendency is characteristic of this district, for growers and packers use the top of picking range as the sole criterion for starting picking. Although practical considerations frequently justify this procedure, I believe more emphasis should be placed on the desirability of fruit firmness reaching the lower half of the picking range before picking.

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg. (continued)

"The Yellow Newtown apples, however, have been left on the trees (in most cases) until the fruit was more mature (firmness less than 18 pounds by U. S. tester) than usually recommended. This delay in picking was the result of an effort by the packers to minimize the development of bitter-pit.

"Last season much packed fruit had to be repacked to remove from 20 to 30 percent of the fruit which showed bitter-pit. This year, however, water-core showed up before harvest time, and the delay in the picking may be responsible for the very great amount of water-core evident in the fruit reaching the packing houses."

ADMINISTRATIVE NOTES

New Bid Forms. Special attention is called to the issuance of a new and revised form for securing bids (Standard Form 33, Revised). This contains the latest instructions and conditions which MUST be accepted and observed by bidders. If you have occasion to ask for bids, write to the Business Office at once for a supply of the new form. If you have any of the old Form 33, destroy them or send them to Washington--asking for a new supply.

The new forms include the clauses formerly attached as "Special Condition Sheet" and therefore this sheet need not be attached to the new form, but until further notice the following paragraph must be added to the specifications in connection with all bids:

> "Provided, That the bidder to whom award is made shall not be charged with any excess cost occasioned the Government by the purchase of materials or supplies in the open market or under other contracts when the delay of the contractor in making deliveries is due to unforseeable causes beyond the control and without the fault or negligence of the contractor, including, but not restricted to, acts of God or of the public enemy, acts of the Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather but not including delays caused by subcontractors."

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ADMINISTRATIVE NOTES

Leases--and coal purchases. A notice from the Real Estate Officer of the Department calls attention to the fact that until full information is available concerning the scope of the Bituminous Coal Conservation Act of 1935, there should be incorporated in all invitations to bid and specifications for the leasing of office, laboratory, warehouse, storage or other space for the Department, a provision reading as follows:

> In accordance with the provisions of Section 14(b) of the Bituminous Coal Conservation Act of 1935 (Public--No. 402--74th Congress, approved August 30, 1935) the lessor agrees that he will buy no bituminous coal to use on or in the carrying out of this lease from any producer except such producer be a member of the Bituminous Coal Code set out in accordance with Section 4 of said Act as certified to by the National Bituminous Coal Commission.

This provision is being incorporated in all leases prepared in the Solicitor's Office, and should, of course, be included in all leases prepared in the field, including short-form agreements for limited periods. In the event that a bidder or lessor refuses to signify his willingness to comply with the provision, the papers should be referred to the Solicitor for consideration.

The point to be emphasized in this connection is that whenever time will permit--and that should be 99-44/100 percent of the time--such matters should be referred to our Business Office for attention in order to make sure that the leases, etc. are prepared in accordance with the latest rules and regulations. It is practically impossible for field men to keep pace with these!

Delayed Vouchers A colored boy who was strolling through a cemetery reading the inscriptions on the tombstones, came to one which read: NOT DEAD, BUT SLEEPING. Scratching his head, the boy turned to a man who was standing nearby and pointing to the inscription said: "He sure ain't foolin' nobody but hisself, is he?"

Recently we had sent to us a voucher covering a purchase made more than a year ago. Of course, such things can happen where bills are mailed to the wrong address, or made out improperly in some way so as not to be recognized. Such experiences emphasize the fact that every employee who spends Government funds must realize that he is responsible for seeing that the bills are made out properly and presented promptly. If you get a bill you do not recognize, do not throw it in the wastebasket, but write the dealer to make sure what is meant--and that the bill has actually been paid or is in course of payment. For, alas, the employee who thinks he can shirk this responsibility "ain't foolin' nobody but hisself."

ADMINISTRATIVE NOTES

Witness fees, etc. Paragraph 688 of the Administrative Regulations of the Department has been amended to read: Appearance, Fees, and Expenses of Department Employees as Witnesses in Judicial Proceedings.— The cases involving appearance will be treated in the following groups:

(a) Employees testifying in cases arising within the department or growing out of the violation of laws of a state or subdivision thereof in the enforcement of which employees of the department have been authorized to assist, including laws with respect to migratory birds, livestock, the protection of fish and game and the prevention and extinguishment of forest fires; (b) Employees testifying for the United States in cases not arising within the department; (c) Cases between private parties or by some party other than the Federal Government where the employee is called upon solely because of and to testify in his official capacity or to produce official records or information; and (d) Cases between private parties where the employee's testimony has no official character, or cases in which a state is a party not covered by (a) above.

Appearances: In cases (a) and (b), may be without subpoena; in case (c), there must be no appearance without subpoena; and in case (d) the department is not interested in the manner of appearance. In case (c) the employee subpoenaed should notify the chief of bureau by letter or telegram stating the names of the parties litigant, the matter in suit, and the nature of the testimony the employee expects to give. Where in case (c) the chief of bureau deems the production of records or the employee's proposed testimony prejudicial to the public interest, he should at once refer the case to the Solicitor of the department who will promptly advise whether the employee may be compelled to appear and testify. The term "chief of bureau" throughout this regulation will be construed to include regional foresters.

Witness Fees and Expenses of Travel and Subsistence.- The terms "fees" and "expenses" are distinct. The first means the amount allowed as pay for attendance; the second, the amount allowed to cover travel and subsistence. In case (a) no fees are allowable. Expenses of travel and subsistence should be paid from the department appropriations as in case of official travel unless a different arrangement has been made between the cooperating states and the department. In case (b) no fees are allowable. The expense account, prepared on a special form furnished by the United States marshal, should be presented to him for payment. In case (c) fees and expenses should be accepted but all amounts so collected over and above the amount of actual and necessary expenses, a statement of which must be furnished the chief of bureau, must be turned into the Treasury as miscellaneous receipts. In case (d) the department is not concerned with fees or expenses. No account need be rendered. In cases (a), (b) and (c) no leave need be taken, the employee is regarded as on official duty. In case (d) leave with pay, or if such leave has been exhausted, leave without pay, must be taken.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R .

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

Vol. VII Washington, D. C., December 2, 1935 No.23

And they call it Small Fruit Breeding!

"I don't see how in the world Miss Soandao gets so conceited," remarked one girl to another. "She does it with mirrors," explained the second girl. It's going to be very easy for us to do it with strawberries, what with the Frosted Foods Corporation of Boston writing Dr. Darrow: "You will probably be interested to learn that we are arranging to freeze 100 tons of Redheart strawberries in Oregon. In fact, we are paying a premium of 1 cent a pound over the Marshall for this year to encourage the growers to plant the Redheart."

Hmmmmm! As if the growers needed any encouragement! Dr. Darrow doesn't appear to be excited over the matter, but then this strawberry breeding work is getting to be an old story with him. We now have 7 new varieties making good commercially. One of them, the Blakemore (a cross of Missionary and Howard 17 or Premier), is pretty likely to be ranked third in importance in the United States before the end of 1936--and this after only a half-dozen years in commercial culture. To judge from the Frosted Foods Corporation letter, the Redheart is doing very well indeed--and the Narcissa is keeping right along with it in the Pacific Northwest. The Southland is generally regarded as the best home garden variety for the South; the Dorsett and Fairfax continue to succeed very well indeed in the East; and the Bellmar is doing quite well locally in North Carolina.

Just to keep these 7, and the standard sorts, hustling, we have 20,000 more strawberry hybrids working out daily in our gymnasium. Already some of these indicate that the sorts now grown will have to keep stepping to hold their places in popular favor.

NUT-PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"The forepart of the week ending November 9 was spent in a study of the probable cause of a crown and root rot of grafted walnuts which has caused serious damage in an orchard near Liberty, Oreg. Approximately 25 percent of the trees in this planting have died from this trouble and at least 25 percent of those left are so badly affected that, in all probability, they too will die in the very near future.

"The trees in this orchard are grafted on presumably Northern California black root stocks (Juglans hindsii var. californica), although there is a possibility that in some cases the rootstocks are hybrids of Juglans hindsii with other species of walnuts. In many trees the union of the stock and scion is above the ground line so that a portion of the black walnut rootstock is exposed. It is this exposed portion of the black rootstock which is most severly affected, although in many instances the collar and main roots near the surface are also dead or badly injured. The Persian part of the tree above the graft union is typically not affected at first until the crown is girdled and the roots die. In some instances, however, the crown did not show any damage but the deeper lying roots were found dead or badly injured. The greatest amount of damage occurred in the most unfavorable soil location in the orchard, where soil borings indicate that the soil is quite shallow. In some spots in this orchard there is not much more than 2-1/2 feet of soil capable of being penetrated by the roots. All available evidence points to the probable fact that the adverse soil conditions have predisposed these trees to winter injury and possibly to attack by weakly parasitic soil organisms....

"After 9 successive days of morning temperatures below the freezing point, the weather has at last moderated and normal temperatures now prevail. The recent cold spell has not only been the most severe ever experienced in the Pacific Northwest so early in the season, but has been the longest and probably the most widespread."

He had written previously: "A total of 5 inches of snow fell at Corvallis October 30 and 31, the first snow ever recorded in October in western Oregon in the 45 years that weather records have been kept. The previous record was November 2, 1893, when a trace of snow fell. The earliest previous measurable amount was on November 10, 1911, 2 inches. The heavy snowfall, coming at a time when considerable foliage was still on the trees, caused a considerable amount of breakage on the limbs of trees around Corvallis, the sycamores suffering more than any other kind of trees. On November 1, the temperature at Corvallis dropped to 21° F; at Salem to 14° F. It is feared that the unseasonably severe cold spell coming before the trees were fully dormant has caused a vast amount of damage. Local damage to some of the less hardy trees, such as figs, has already been confirmed...."

NUT PRODUCTION AND DISEASES

J. R. Cole, Albany, Ga.

"Our spray experiments did not come up to expectations," he writes October 26th from the U. S. Pecan Disease Field Laboratory, "nevertheless they did prove to us that scab can be controlled successfully." (On most varieties, that is. He reports November 2 that 5 applications of 2-1/2-50 bordeaux failed to control scab on the Delmas variety.)

"We estimate that the loss from scab on plots 10 (2-1/2-50 bordeaux mixture plus oil) and 21 (two applications of 2-1/2-50 bordeaux pre-blossom spray followed by 3 applications of 3-1-50 bordeaux) was not over 1 percent. There was no premature drop of nuts from scab on these plots, the loss resulting from undersized and poorly filled nuts. Of course, we have not made the cracking tests yet. The discouraging part of the experiments is the fact that the trees in the best plots averaged only 26-1/2 pounds. We estimate that at least twice that many were shed between May and September due to some causes unknown to us.

"The weather remained dry with high temperatures."

Milo N. Wood, Sacramento, Calif.

"In the districts where data has been obtained it is clear that the almond crop was very much below the average," he notes in his report for the two weeks ending October 26th. "However, in some districts, including Arbuckle, Esparto, and Winters, the yield has been good and in some orchards has been very heavy. The average almond yield for the State, however, is far below normal."

Max B. Hardy, Albany, Ga.

Writing from the U. S. Pecan Field Station and Laboratory on November 9th, he reports: "The harvest in this region is almost finished. This has occurred somewhat earlier this year than normally. The shucks on the nuts of all varieties opened normally but there was a small percentage of sprouting in all varieties.

"Throughout the harvest season there were not more than one or two days when it was too wet to harvest. The month of October almost set a record for the driest month, with only .08 of an inch received at the station farm at Philema and .07 of an inch at Albany. The record low was .06 of an inch a few years ago. The dry spell of almost two months' duration was definitely broken on Thursday, and indications are for more rains within the near future."

NUT PRODUCTION AND DISEASES

Max B. Hardy (continued)

Writing on November 16th he reported: "It may prove interesting to note that the estimated total yield from the two seedling orchards at Philema will approximate the record yield of about 7300 pounds obtained in 1931, even though many trees have been removed since that time.

"In the cross-bred orchard 134 trees fruited this year. Out of this number some had borne previously but of those which had not thirty were considered of sufficient promise to warrant further trial. This number brings the total of those saved for further observations to fifty-six."

J. R. Cole, Albany, Ga.

"We have at last had plenty of rain," he writes November 16th, "and are getting a good stand of vetch from the September planting. Those plants that survived the ten weeks' drouth are making a good growth."

C. E. Schuster, Corvallis, Oreg.

"The snow has finally left," he reports November 9th. "The prune and cherry orchards and similar fruit orchards have turned in most cases to a dull red. Very little of the foliage is falling off. On the walnuts the leaf scars are running a steady flow of sap in many cases."

FRUIT DISEASES

M. A. Smith, Springfield, Mo.

"As indicated in an earlier report," he writes from the Ozark Fruit Disease Laboratory November 2, "this was a most favorable season for injury from copper fungicides. A recent study of some of the hygrothermograph records shows that on several days during the spraying season the relative humidity was close to 90 percent, while the temperature was in the low 40's. Such favorable conditions for spray injury were reflected in the final harvest results, which showed that in some of the plots sprayed with the more soluble coppers as many as 80 percent of the fruits were russetted.

"Spray injury from the use of copper phosphate was greater this year than in 1934, actual figures showing about 1 percent in 1934 as compared with 9 percent in 1935. Fully one half of the recorded spray injury from copper phosphate at Marionville in 1935 was of a very mild type--not enough injury to prevent fruit being placed in a U.S. No. 1 grade."

DISEASES OF ORNAMENTALS

Frank P. McWhorter, Corvallis, Oreg.

A man stopped at the book counter and wanted to purchase a book for a Christmas present. "Do you want something light?" inquired the saleslady "It doesn't matter," replied the man; "I have my car with me." We feel, however, that readers of the NEWS LETTER need a little heavier stuff now and then, and are glad to present some carefully worked out statistical data submitted by Frank in his report for the first week in November. It reached us a trifle late for the November 15 issue--what with the care necessary to make it scientifically accurate.

"Corvallis can claim an ornamental catastrophe," he writes, "since western Oregon's October snapped off with cold, mantled with snow, the first time since 1874.* This condition is unusual, unprecedented, and unwanted. The leaves were on the trees. Five inches of snow fell on the ground: 0.346 to 0.892 remained on the leaves. The snow on the leaves pulled down the trees. A cubic foot of snow weighs 5.63 plus or minus 1.24 pounds. The damage done was in direct proportion to the size of the leaves. Ulmus americana, each bearing 20 to 40 thousand leaves, each leaf carrying 0.4 ounces of snow, weighted 400 to 1,000 pounds on trees. The plane trees were mashed flat. For example, on Jefferson Street (latitude 44.5 and longitude 123 plus or minus 66/2) the Platanus acerifolia trees attempted to carry an ounce of snow per leaf, or 1 to 2 tons per tree. As a result of this attempt, the street was closed for half a day. A surprising feature of the snow was its localization. For example, about the same amount of snow fell in Portland as in Corvallis, but since Portland is roughly 60 times as large, the depth per unit area was only a small fraction of an inch and no damage was done. I do not have an official record of the sub-zero temperature, but it suffices to say that our cat** quit staying out nights.

"But science must progress. We were slightly chagrined when a few weeks ago a visiting California virologist spotted 'spotted wilt' on asters about Corvallis. He found it everywhere, on nasturtium, too, but not on tomatoes even when the tomatoes were growing adjacent to asters. Extensive series of tests, twice repeated, have failed to show the presence of spotted wilt virus in the asters! Platings of the leaf spots consistently present an Alternaria which is readily discernible microscopically on and within the leaves. Perhaps we have the virus in culture!"

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*Wonderful memory; and really looks a lot younger.
**Note to Inventory Clerks: Please make sure that this cat is listed under thermometers and not under catastrophes.

-- Jaf

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

"On every night except one during the past week air temperature minima were below 30°," he writes November 11th, "while maxima were between 48 and 60. The minimum of 19° the previous week froze over 20,000 boxes of unpicked Yellow Newtown apples. By November 6th this fruit had thawed sufficiently to pick and haul to packing houses. I estimate that about 2,000 boxes of apples show a glassy, water soaked appearance of the flesh. This fruit will be culled and will constitute the only direct loss that I know of in this district. I was interested in noting, however, that much of the fruit that did not show any visible sign of cold injury did have a very sweet taste. This sweet taste is in such marked contrast to the flavor of normal Newtowns at this time of year as to distinguish all Newtowns exposed to the low temperatures....."

"Practically all Bosc arriving on the New York market is being conditioned on a steam heated barge at the Pennsylvania pier at a cost of 2 cents a box for conditioning and an additional charge not exceeding 3/4 of a cent for demurrage. Although this conditioning of Bosc has not resulted in any increased auction prices thus far, it is causing Bosc to pass immediately into consumption, an occurrence which should stimulate future auction prices."

He had written November 4th: "The past week brought minimum temperatures as low as 19° F., very unusual for the last week in October. Soil temperatures dropped from 48 to 41 degrees and 38 degrees for the top foot... With the exception of two or three orchards, the last of the Winter Nelis pears and Yellow Newtown apples have been picked.

On October 28th he reported: "Ammonium sulphate was applied to all 'fall application' plots. Records of soil temperatures were started and during the week the temperature in clay adobe varied diurnally between 51 and 48° for the 6-inch depth, and between 50 and 46° for the 12-inch depth...."

George F. Waldo, Corvallis, Oreg.

"On Thursday, October 31, there fell between 4 and 5 inches of wet snow, causing great damage to fruit and shade trees," he reported for the week of October 28-November 2. "The snow being wet and these trees still having their leaves caused a great deal of breaking of limbs. Temperatures Friday and Saturday morning went as low as 14° F. Such temperatures may cause considerable injury to fruits in addition to the injury caused by breaking of branches. However, no injury is anticipated to the strawberries as they are generally well protected by the snow."

FRUIT PRODUCTION

C. P. Harley, Wenatchee, Wash.

A report dated November 5th, gives some more and very interesting details concerning cold damage to crops in the Pacific Northwest, especially apples.

"The latter part of the apple harvest season in the whole Pacific Northwest has been a rather hectic affair," he comments. "Since the 21st of October minimum temperatures have been slightly below 30° F. Under these conditions the fruit could not be picked until late in the morning because of frost, and consequently the harvest season did not progress as rapidly as it should have.

"The climax to this situation came on the night of October 31st when our thermograph recorded 7° above zero at the Van Valkenburg Ranch; the night of November 1st, 5°; November 2nd, 10°; and November 3rd, 15°. Since these dates the temperature has been gradually rising.

"It is estimated that the growers in the Wenatchee district were caught with approximately 1,000 cars of fruit on the trees. This fruit, of course, is a total loss. In addition it is estimated that 500 cars are still in the orchards in stacked boxes. Just what percentage of these stacked boxes will be in condition to pack is still to be determined. The larger stacks which were covered with paper appear to have survived remarkably well. The boxes on the outside and top of these stacks are no doubt frozen beyond redemption, but many in the center will probably escape serious damage.

"We are fairly well acquainted with the results of these low temperatures on the fruit, but the thing that is bothering me is what has happened to the trees. It is rather an odd sight to see the leaves still on the trees, dark green in color, and frozen. Both the fruit and leaves are sticking tightly. We are wondering if the buds have been injured. It is still too early to determine very definitely if any bud or wood injury has taken place.

"We have just completed the first series of carbohydrate analyses. We have only "eleven" more to go. We are very much pleased with our analytical methods now. I have more confidence now in our carbohydrate analyses than I have ever had before, and our procedures have been modified to not only increase the accuracy but several time-saving changes have been made. I am planning to write up these modifications shortly."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS

J. R. Winston's paper on "Reducing Decay in Citrus Fruits with Borax," has been issued as Technical Bulletin No. 488 in the Department's series. Although, as pointed out in the introduction to the bulletin, the production of citrus fruits is confined to relatively small areas in a few States, the market for the crop is Nation-wide and there is a growing export trade as well. The losses from decay developing between the time the fruit is harvested and consumed are often serious and greatly complicate the marketing program. So, this new publication with its 32 pages 22 striking illustrations is going to be very useful.

It has been only a few years since work was undertaken at Orlando, Fla. to determine whether a more effective control of stem-end rot could be obtained by the use of borax or some other cheap antiseptic applied in the packing house during the handling operations. Summarizing the studies reported on, the bulletin says:

"A borax bath given to citrus fruit immediately upon arrival at the packing house was found to retard decay caused by the common stem-end rot and blue mold organisms. Delayed treatments were not as effective.

"The borax treatment was found to be effective on fruit needing the coloring treatment as well as on that which was fully colored when harvested.

"The antiseptic treatment was much more effective on firm fruit than on over-ripe fruit ready to drop from the tree.

"For best results it was found that the concentration of borax should not be less than 8 percent. Whenever possible the wet fruit should be dried slowly and the borax residue should be left on the fruit for several hours.

"In cold weather it is desirable to raise the temperature of the rind of the fruit to about 90° F. before giving the borax treatment, in order to retain the maximum effective amount of borax in solution. This may be accomplished by warming the fruit in coloring rooms or by passing it slowly through long tanks with heated borax solution.

"In well-organized packing houses the cost of this treatment has not exceeded one-half to two-thirds of a cent per 100 pounds of fruit.

"The value of the treatment is reflected in a reduction of decay while the fruit is in transit and in improved keeping quality after the fruit arrives at the market and enters the hands of the retailer and the consumer. Its value is especially apparent when fruit is held on the market for several days, particularly in warm weather."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Freezing Injury in Northwest. An interesting letter from A. Lloyd Ryall, Yakima, Washington, to Mr. D. F. Fisher on November 19th gives us some more details on freezing injury there. "As nearly as we can ascertain at this time," he writes, "there were approximately 300 cars of apples on the trees (mostly in upper Tieton) and 2,000 cars under the trees in all parts of the valley. The apples on the trees are, of course, a total loss. The fruit which was under the trees is in various conditions. That which was spread out with no covering is a total loss. That which was stacked and covered is partially lost.

"Advice as to handling the fruit during the freeze was variable. Most of the advice was to leave it alone until the cold spell was over. Our own advice was merely that the grower had a choice between two evils--namely, to move it while frozen and subject it to serious bruising or to let it stand and take a chance on the weather. As it turned out the growers who moved it during the early days of the freeze came out much better than those who left it out. That which was moved in while frozen is bruised but marketable while much of that left out is absolutely unmarketable. Some large blocks which were left out are still frozen except for the top layer or two.

"One serious problem now is the thawing of the fruit in storage. I have suggested that thawing at 31 to 32 degrees will take too long a time and that fruit will suffer more than if thawed more quickly. Therefore some of the storage men are attempting to thaw at about 35 degrees but are finding it very difficult to hold the temperature up with the outside temperatures as low as those prevailing since the freeze. Several storage concerns here are actually heating the cold storage rooms by means of steam radiators and stoves. Many of those who are not heating have temperatures as low as 29 degrees in the rooms. They cannot seem to realize how much refrigeration capacity there is in a room full of frozen fruit.

"I have some temperatures from a thermograph record in a Selah orchard which you might be interested in:

October	29	Maximum	30° F.,	minimum,	25° F.
"	30	"	24	"	17
"	31	"	23	"	16
Nov.	1	"	25	"	6
"	2	"	30	"	5
"	3	"	31	"	5
"	4	"	33	"	11

You can readily understand why the fruit was so seriously injured.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

A. Lloyd Ryall (continued)

"Another question which arises in connection with the freeze injury is the extent of recovery which will be made by fruit which shows no visible internal or external injury but has developed off flavor. Many of the shippers seem to feel that the fruit will throw off this abnormal flavor but I have my doubts. However, I have had no previous experience with this problem and so can make no statement.

"The Traffic and Credit Association here estimates the loss now at 1800 cars, practically all of which are Winesaps and Romes. Their estimate last week was 750 cars lost, so you can see that further revision may show an even larger loss than 1800 cars.

"In addition to the injury to apples, the freeze here did serious damage to potatoes, root crops and nursery stock. Approximately 15 percent of the potatoes were in the ground when the freeze hit and are almost a total loss.

"Injuries to trees is a topic of much discussion but the best opinion seems to be that injury is not serious. I feel that if low temperatures should prevail this winter there might be serious injury due to the weakened condition of the trees. I know of one two-year-old planting of apricot trees which is killed to the ground, but this is the only serious tree injury I have seen."

Wm. R. Barger, Indio, Calif. (4)

"The date crop around Indio and south is over 80 percent harvested, while the late ripening section to the west is about two-thirds picked," he writes November 20th. "The quality is good, the highest percentage of fancy fruit for some years, but it is estimated that the crop will not be larger than last year's which was probably around five million pounds....Some young palms came into bearing this year and with the natural increase in production of the older palms, the crop would have been a couple of million pounds larger had it not been for poor pollination. For some unknown reason about one-third of the flowers did not set after pollination last spring. There seems to be an active demand for fruit this season.

"There has been slight frost in the lower end of the valley but the beans and peas around Indio have not been killed. The weather has been too cold for much growth but the harvest continues and prices are good. Onions and corn crops are being planted. Grapefruit is coloring and is fairly sweet but the size is small....We had the first snow on the mountains November 17th, and quite a rain in the valley, but no damage was done to the crops."

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

W. T. Pentzer, Fresno, Calif.

"You, no doubt, have seen reports on the unfavorable weather conditions in California," he writes November 5th in a letter to Mr. D. F. Fisher.

"We have had several rains, and for the past two weeks there has been frost rather frequently. As a result of the rains and the damp weather gray mold has appeared on the grapes in the field, and even before the frosts many of the shippers and storage men were fearful of the storage quality of their Emperor grapes. Only about 50 percent of the Emperor crop has been harvested due to the immaturity and generally poor color.

"The cold weather, the temperature dropping to 25° F. in some vineyards, has injured the stems and berries on much of the fruit adding further complications in the storage of grapes. I have inspected certain lots coming into storage both here and at San Jose and find a considerable quantity of gray mold in some lugs of grapes. All this appeared to be field infection which had not been trimmed at the time of packing. It appears that close attention will be necessary this year by the storage operators and perhaps more frequent fumigation with sulphur dioxide."

Floyd Zimmerman, New York City Pathological Laboratory.

"I have been busy the last few days inspecting 27 cars of Delicious and Staymans from the Okanogan valley in Canada for export on the MS TALISMAN to South America," he writes to Mr. Fisher on November 11th. "Evidently some of the cars were caught in the cold weather in the Northwest, as many lots showed freezing injury and frozen apples along the side of some boxes. Also the C.P. and C. N. reefers are not so good, when it comes to protecting fruit in cold weather."

POTATO INVESTIGATIONS

W. C. Edmundson, Greeley, Colo.

"Sunday night 8 inches of snow fell," he writes November 6th. "The storm was quite general throughout the Rocky Mountain Region. The weather has turned quite cold since the storm. Last night 2 above zero was recorded at the station. Many of the sugar beet growers still have a portion of their crops unharvested. Probably 20 percent of the beets remain in the ground. Some growers are digging beets today, but they are digging under great difficulties."

ADMINISTRATIVE NOTES

"Dr. M. A. McCall recently accompanied Dr. E. C. Auchter and Dr. Victor R. Boswell on a short trip into the Southeastern States for the purpose of observing production problems in the truck-producing areas," says the CEREAL COURIER for November 10th. "Stops were made at Willard and Wilmington, N. C., Charleston, S. C., Tifton, Cairo and Albany, Ga. and Meridian, Miss.

"AT Willard, N. C., the work of the Division of Fruit and Vegetable Crops and Diseases, cooperating with the North Carolina station and the State Department of Agriculture, was inspected. This includes extensive research on strawberry and cane-fruit breeding and bulb growing, together with some work on the Muscadine grape. The Division of Nematology is also carrying certain work on strawberry dwarf at this station. In the Wilmington area visits were made to the farms of several extensive truck shippers and to one of the largest bulb producing farms, all of these growers producing for the northern markets.

"At Charleston, S. C., considerable time was spent in going over the cooperative work of the Division of Fruit and Vegetable Crops and Diseases at the South Carolina Truck Station near Charleston and visits were made to farms of commercial truckers. This is one of the most important and intensive truck-producing areas visited on the trip."

HISTORIC APPLE TREE

James Montagnes, in a letter to Country Life (London) for October 12, reports our Daily Digest, says: "Although no longer in Canada, the most historic apple tree in North America is intimately related with the Dominion. This 109-year-old tree, which still bears fruit annually, is located at Fort Vancouver, in the State of Washington, where it was planted in 1826 by officers of the Hudson Bay Company.

"Fort Vancouver was once in British territory, but being just the other side of the 29th parallel is now in the United States. The tree was planted from the seeds of an apple eaten at a banquet to Captain Simpson and other officers on their way for the fur company to the new fur post at Vancouver....After several years the tree bore its first fruit, one apple, which was divided among the 17 men of the post. Next year the tree bore a crop of 20 apples and has been producing an annual crop ever since."

Incidentally the Canadian press reported recently that for the first time since 1929 a Canadian won the highest award in the dessert apple class at the Imperial Fruit Show at Cardiff, Wales, returning to the Dominion what is considered the blue ribbon of the world's greatest fruit exhibition. The first prize went to James Low of Oyama, B. C., whose exhibit of Delicious won him $200 in cash.

--Daily Digest

ADMINISTRATIVE NOTES

Altering the Standard bid Form.

A decision (A-65034) has been made by the Comptroller General based on a recent case in which an employee of a Government bureau took it upon himself to alter the wording on the standard bid form--No. 33. He inserted a special condition in the specifications to the effect that the award would be made "in total and not by items."

The printed instructions on the reverse of this bid form state that the Government reserves the right to accept or reject any or all bids or any item in a bid, "unless otherwise specified by the bidder." It has always been understood that when various articles or services are listed in specifications on which bids are based the acceptance is to be made on the basis of the lowest price for each item meeting the specifications and requirements unless the bidder has stated on his bid that it is based on acceptance of "all items or none."

It is recognized that quite often a bidder will offer a lower aggregate price if he knows that award is to be made of the entire list than he would make if there is a possibility that he will be awarded only certain items of the list. For this reason it is a good practice to add a line to the specifications stating "Prices if all items specified are furnished." In this way a comparison will be possible between bids on each item as well as on the total of each bid. By adding this statement to the specifications it makes clear to the prospective bidder that there is a possibility of his receiving only a portion of the order unless his total bid is the lowest received.

The Comptroller in this decision ruled that no official has the right to alter the printed wording on the standard bid form without prior approval of the Procurement Division.

Sometimes the nature of the equipment to be purchased is such that all items must operate together to make a satisfactory outfit. In such cases the various parts should not be listed definitely as separate items, but should be described fully and the specifications drawn to state that all the parts must be of the same manufacture in order that they may intermember properly.

Whenever time permits, of course, all tentative specifications should be submitted to the Business Office for consideration and suggestions. And remember that there is now a revised bid form--Standard Form 33, Revised--which must be used. It includes the clauses formerly attached as "Special Condition Sheet." Write the Business Office for a supply if you expect to have occasion to ask for bids--and be sure to destroy your supply of the old Form 33.

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

S E M I - M O N T H L Y N E W S L E T T E R.

The Official Organ of the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.

John A. Ferrall, Editor

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Research Effective. "Properly to fulfill its function, research must be relatively continuous in plan and execution," says Mr. Richey in his annual report. "Undue modification to meet ever-shifting needs results only in fragmentary accomplishment in any direction with a minimum of value to anyone. Research prosecuted to successful solutions, on the other hand, builds a cumulative store of information upon which to draw when need arises. The value of such a research program by the Bureau of Plant Industry upon problems related to crop production has been continuously demonstrated through the recent years of agricultural adjustment.

"Information has been available as to the kinds and varieties of field and horticultural crop plants that were suited for different purposes in different localities. Of nearly equal importance, it has been possible to discourage unwarranted expansion of some crops and thereby avoid heavy losses to farmers and investors, certain otherwise to have followed....Finally, the increased efficiency of production, the avoidance of losses in field and storage, and more economical methods of transportation and storage made possible by various phases of the Bureau's research have benefited all classes of the population."

The horticultural topics touched upon at least briefly cover a wide range, including the possibility of controlling setting of apples, the response of sweet cherry trees to pruning, results of thinning dates, the work on strawberries, especially as it concerns our new hybrids, the control of cranberry diseases, factors affecting the yield of pecans, vegetable production and diseases, handling, transportation and storage methods, etc., etc.

A 3-percent tar-oil distillate applied at the late cluster-bud stage has given considerable promise in connection with the problem of finding a spray that will destroy apple blossoms or prevent them from setting fruit, without injuring the tree or foliage. By destroying the crop of a considerable portion of apple trees in normal full crop years, the trees will bear abundantly the next year.

The orange precooling and transportation studies developed a method which has reduced the rate from $25 to $10 a car, the saving of $15 a car representing a divident of considerable size on our investigations. We have found, too, that sodium metaborate is practically as effective as borax as an antiseptic on citrus fruits, while it has the advantage of being a satisfactory detergent as well. Its chief advantage, however, lies in the fact that the solution does not have to be heated.

The new potato varieties developed in connection with our breeding work are making excellent headway. The Katahdin and Chippewa, white-fleshed varieties, continue to show resistance to mild mosaic, says the report. Approximately 100,000 bushels of Katahdin and 1,500 bushels of the Chippewa were grown in the various cooperating States in 1934. The Chippewa seems widely adapted. Additional progress, too, has been made in breeding potatoes resistant to both scab and blight.

The experience of rose growers in recent years in the use of manetti stocks in propagating rose plants for forcing was costly and unsatisfactory in many cases, because of the failure of the plants to grow or develop properly. Our studies have shown that the principal difficulty was due to the stocks being dug prematurely--before the wood was well ripened. Leading growers of manetti stocks in the Northwest have adopted our suggestions and are now delaying the digging of the stocks until no doubt remains as to their maturity. The starch test for maturity, developed as a part of our investigations, is being used.

The new copper phosphate fungicide and the carrier, lime-bentonite, is proving quite successful in tests in connection with the spraying of apples, pears, peaches and grapes. It was effective during the year in controlling the leaf spot disease of Kieffer pear and was largely responsible for a decided increase in the fruit crop.

The report points out that nearly all of the 30,000 acres of the winter crop of lettuce in the Imperial Valley of California, and a large part of some 25,000 acres grown in Arizona, are planted to our new varieties, resistant to brown blight.

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash.

"On Tuesday, November 28th, I visited Chelan and Wells Station to look at apples both frozen and thawed," he writes in a letter to Mr. D. F. Fisher, dated November 30th. "The greatest difficulty has been experienced in thawing out apples placed in common and cold storage while frozen hard. In the rush attention was not paid to spacing stacks and thawing progresses very slowly. Naturally they do not want to rehandle the frozen fruit to space now. At the Beebe ranch they have placed a large railroad station type coal stove outside at a door and suck air in over this heater. After thawing the tops of stacks they set these boxes off and progressively are thawing down through the stacks, though now, a month after freezing, they have enormous quantities of frozen apples in storage. They had 85,000 loose boxes sitting under the trees when the cold wave came. The fruit moved first (November 1st) looks the best after thawing. Possibly they will lose from 20 to 25 percent from bruises resulting from handling while frozen.

"At the A. Z. Wells ranch, where they had the apples assembled in blocks, four high, and where they covered the stacks with 3-ply heavy paper when the freeze came and let the apples remain until a week following when practically all of the frost had been removed, they are in very good shape. Aside from any loss due to possible depreciated storage quality it looks as if Mr. Wells' loss will be very small. When I examined this fruit in the orchard on November 9th when it was ending its thawing stage, many apples which appeared unhurt had a bad flavor. I could not find fruit having a bad flavor on November 22nd unless it showed some evidence of injury, as occurred in some of the bottom boxes which he had segregated. He had his orchard stacks on rails or scantling which did not give him the advantage of soil heat at the bottom of the stacks. Although not moving the fruit while frozen played a major part in minimizing losses, still his method of protection probably affected tissue temperatures which were for the most part not below 27° or 28°.

"Tom Clawson, at Chelan, influenced many growers not to move their apples while frozen. (He had had his lesson in Omak in 1919). This fruit now looks very good. One lot of Rome Beauty apples, not moved, has recovered excepting for a slightly changed flavor. A contrasting lot of Romes, moved while frozen, had almost completely collapsed. The shock to the cells when jarred while tissue is frozen apparently disturbs very much more tissue area than that in the immediate vicinity of the bruise. This, I velieve, is directly related to the intensity of the freezing. Some of Van Valkenburg's Winesaps which I moved to storage while in the incipient freezing stage did not show the effects of handling to the extent of collapsing and resulted in about 20 percent of the apples having small bruises at point of contact. One lot of this fruit left in the barn (with the bulk of his exposed fruit) from November 1 to November 5, had occasionally an apple

FRUIT AND VEGETABLE HANDLING, TRANSPORTATION AND STORAGE INVESTIGATIONS.

Edwin Smith, Wenatchee, Wash. (continued)

with a bad flavor. I could not find any of these bad-flavored apples when I examined the fruit on November 25th. Thus there is some evidence that apples will lose bad flavors from freezing, although this evidence is not such as to make it conclusive. Tom Clawson has been fanning some lots which he said tasted very badly two weeks ago. This fruit did not taste significantly abnormal on November 22nd.

"Wenoka growers at Chelan have fruit moved to storage while frozen and which is marked with the date of hauling. That moved November 1st is showing less injury than fruit moved on subsequent days, the bruises and collapsed fruit increasing progressively with the date of hauling, which means with increased exposure, and degree of freezing.

"There is still a great deal of confusion regarding the best way to thaw frozen apples. Apparently thawing at temperatures above 40° is helpful rather than injurious if the tissue temperature is not too low when so exposed."

"It is the time of year when growers and market organization field men have time to drop in for a chat and, of course the thawing of frozen apples and their subsequent sorting has given them a seasonal subject for discussion," hehad written November 23d. "For the most part packing shut down when the 'big freeze' hit the State and has started up again only here and there. Most owners of fruit decided to allow the fruit to reach an equilibrium after thawing before riskin the expense of packing. "There is much fruit which does not appear to be injured which does not taste right."

"Of the enormous volume which was moved to cover while frozen we doubt if much over one-third will be marketable. At the higher altitudes where severe exposures were suffered we doubt if over 25 percent will be salvaged. The State-Federal inspection service has adopted the policy of being very careful about certifying fruit which is being packed since the freeze. Cold storages are having difficulty thawing fruit which was brought in while frozen. Even with air temperatures at 34° fruit remains frozen a long time while stacked in large blocks. These temperatures, of course, are a serious handicap in keeping Delicious which were in the rooms previous to the freeze.... The weather has been mostly cloudy and moist since November 6th. We have had light rains and, on November 22d, a snowstorm. On only a few nights during this period have we had frosts."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg.

"the forepart of the week ending November 23 was spent in a survey of the possible ill effects to walnuts and filberts from the unseasonably early cold spell which occurred in Oregon during the latter part of October. Walnuts in the vicinity of Eugene, Oreg. were found injured to a greater or less extent. The crown and trunk is very badly discolored in many cases. Filberts and chestnuts in this vicinity did not appear to have been injured to any significant extent.

In the vicinity of Corvallis serious injury to Persoan walnuts has seemingly occurred. For example, an 8-year-old Franquette orchard about two miles east of Corvallis sustained serious damage. A number of t rees in this orchard are so badly injured that recovery is doubtful. It is of interest to note that Northern California black walnuts and the Thomas walnut (a variety of Juglans nigra) growing in the same orchard show no evidence of injury up to the present.

"Limb grafted Persian walnuts are apparently not as badly injured as crown grafted trees, the trunks of the former showing no evidence of injury to date. The trunks of limb grafted trees are of Northern California black origin, whereas in crown grafted trees the trunks are of Persian origin. There seems to be somewhat more damage on the north side of the trees than on the southside. This may de due to the fact that a cold north wind accompanied the cold spell. In general, younger walnut trees seem to have sustained a greater amount of injury than older trees, although trees as old as 16 years of age were found badly injured."

He had written November 16th: "Damage to walnuts from the recent cold spell is now becoming apparent. The tissues of shoots of late summer or early fall growth have been badly injured in the vicinity of Corvallis, Oreg. In many instances the tissues of these shoots are dead from one foot or more back from the tip. Some of the buds examined have also been damaged to a greater or less extent.

"Nurserymen around Salem, Oreg, state that a great part of the walnut nursery stock has been badly injured. Around Eugene, Oreg. it is reported that walnuts and chestnuts were lost from the effects of the freeze. The walnuts hit were those not yet harvested when the freeze came. The loss was only a small percentage, however, and all walnuts on the trees at the time were not damaged, some being protected by leaves.

"The chestnut crop in this section was a total loss as a result of the freeze."

NUT PRODUCTION AND DISEASES

Paul W. Miller, Corvallis, Oreg. (continued)

He, also, has some additional comments to make on cold injury. "The forepart of the week ending November 30th," he writes, "was spent in field surveys in the vicinity of Corvallis, Oreg., of the possible danage to walnuts and filberts from the unseasonably cold weather occurring the latter part of October. All orchards examined in this vicinity were found to be injured to a greater or less extent. The form and extent of the injury varied in different orchards. In come cases the bodies of the trees, particularly on the north side, are badly injured. In other instances it is the buds, catkins, and current (1935) growth which has sustained the greatest damage.

"Apparently the factor which has largely determined the form and extent of injury is the degree of maturation of the tissues at the time of the freeze. The trees which were in a more or less succulent, unripened condition at the time that the freezing weather occurred seem to have sustained the greatest amount of damage--the bodies being affected to a greater or less extent. These badly damaged orchards are located, for the most part, in the river bottoms and first bench lands, where favorable soil conditions kept the trees growing up until relatively late in the season. In general, the hill orchards and those located on unfavorable soil types in the valleys were apparently injured the least, the buds and current growth being the parts affected in most instances. These latter orchards stopped growing much earlier in the season and hence were not in as susceptible a condition."

C. E. Schuster, Corvallis, Oreg.

Writing concerning general activities, he reports for the week of November 25-30: "The soils that we have been working with are estimated to have an age all the way from fifteen thousand to one million years. The correlation of the information that we got shows why we are getting some of the results that we are, and also why we run into the inaccuracies on the soil maps as they are today when they were developed on 42-inch borings.

"Reports of winter injury, particularly on walnuts, are increasing. There seem to be, so far, but few reports from the uplands. That would appear to indicate that little, or no, damage has occurred at higher elevations.

NUT PRODUCTION

C. L. Smith, Austin, Tex.

"The writer spent most of the week in Oklahoma visiting pecan groves and attending the State Pecan Growers meeting," he writes for the November 18-23 period. "There was an average attendance of 150 at the meeting, most of whom were pecan growers.

They had the largest pecan exhibit I have ever seen, there being more than 1,100 entries. The judging of these exhibits gave an interesting picture of varietal behavior in the State. The best filled variety was the Schley, with the Stuart probably second. The Stuart variety is the most popular variety in most sections of the State and apparently deserves to be placed near the top of the list.

"Topworked trees 3 to 4 inches in diameter with two- or three-year-old tops were bearing as heavily as the Western Schley of the same age. The writer observed numbers of Stuart trees 5 to 6 inches in diameter topworked 10 years ago that are yielding 90 pounds of well filled nuts per tree this year. One native grove of 1,050 acres which has been partially thinned out is yielding 300,000 pounds of pecans this year. There has been lots of topworking and in most cases the trees have been very severely cut back, so that the cuts will never be healed....

"More evidence that Oklahoma growers need to use early maturing varieties was obtained from the fact that in a number of groves the Burkett was not mature when the first frost occurred. Even the Schley was damaged in a few cases in Central Oklahoma."

Milo N. Wood, Sacramento, Calif.

Reporting for the two weeks ending November 16th, he writes: "Some time was taken to go over a few of the trial plantings of the new creations 8-31 and 8-32 which are now being tested out in 93 places in California.

Several of the trial plots in Yolo county were examined. Some of the trees on the better soils have made a remarkable growth. In one or two orchards the two-year-old trees were much larger and more vigorous than similar trees of the common commercial varieties. In fact, the trees are so much larger and vigorous and are producing so many fruit buds that a crop may be expected next year although the trees will then be only three years old. Even upon poor soils, and where water has been lacking, the trees seem to be growing more vigorously and have better foliage than most of the commercial varieties of the same age."

FRUIT PRODUCTION

W. W. Aldrich, Medford, Oreg.

Writing from the U. S. Pear Field Station on November 25th, he says: "The pear industry in this district is very enthusiastic about the results of the conditioning of Bosc on steam heated barges at the Manhattan piers of the Pennsylvania & Erie railroads. The New York market has been taking 40 cars of Rogue River calley Bosc each week. The Chicago market, on the other hand, with no pear conditioning facilities, has been taking only about 12 cars per week and the returns on that market have been poor. However, it is likely that other factors than lack of conditioning are also contributing to the poor Bosc market in Chicago."

POTATO INVESTIGATIONS

Maine Golden Potato Scores. A variety of potato entirely new to this country, propagated in Aroostook County, Maine, for the past 6 or 8 years, is about ready for marketing, says a New York press report. This potato, which will be known as the Maine Golden, is yellowish in color and has many properties not enjoyed by the ordinary Irish potatoes.

The tuber is a cross between the yellow potato grown in Germany and the Green Mountain variety. Experiments were started over six years ago by Dr. Charles F. Clark, and it has taken this length of time to bring it to the point where it is suitable for commercial use. The advantages claimed for this new variety are that it contains vitamin A in appreciable quantities, takes less time to cook than other potatoes, and has a lower starch content than the ordinary white potato grown in this country.

--Daily Digest, USDA, Nov.26/35

N. B. The Dr. Charles F. Clark mentioned is, of course, our associate, who sends in the interesting reports from Maine.

P. S. The N. B. above is our highbrow way of warning you to note well, take notice, etc.; in other words nota bene. This explanatory comment is offered as the result of an experience a certain school teacher had in connection with the use of the expression. She had written N. B. on the blackboard and then explained that it stood for "nota bene." She asked if anyone knew the meaning of the words. There was a pause and then a little boy stood up.

"Please, teacher," he said, "that's what daddy says when he hasn't got any money."

That use of the term is limited to field men--on occasions where salary checks are unduly delayed!

ORANGE GROWERS AND SHIPPERS WARNED ON COLORING

Secretary Wallace has sent the following notice to growers and shippers of citrus fruits:

"The application of yellow and orange coal-tar dyes to the peel of oranges had its inception in 1934. On July 16, 1934, the Department warned the citrus industry that the use of artificial color must be disclosed to the consumer by a conspicuous statement on each orange, and that concealment of inferiority or damage of the fruit by the added color would be in violation of the Food and Drugs Act regardless of color declaration.

"The Department was not able to complete its investigations as to the concealment of inferiority during the fruit season ending in the spring of 1935. In the meantime the installation of elaborate color processing machinery has been extensive, and the staining of oranges by added color has become well-night universal in certain producing sections. A very large number of consumer protests against the practice of staining by addition of color has reached the Department. Their purport is that purchasers are being deceived by such staining even under the required informative labeling. It has always been held that oranges which were so unripe as to fall below the standard of 8 parts of sugar to 1 of acid were inherently inferior, and that coloring of such oranges by any method is a violation of the Food and Drugs Act. Action is taken under the Food and Drugs Act against such fruit wherever encountered in interstate commerce and also against its shippers.

"Sufficient information is now available to conclude that the staining of oranges complying with the 8 to 1 standard, in simulation of oranges of greater maturity and flavor or of superior variety, is also in violation of the Food and Drugs Act.

"Notice is hereby given that on and after September 1, 1936, action under Section 10 of the Food and Drugs Act will be taken against interstate shipments of oranges so stained and under section 2 of that Act against the shippers on the ground that inferiority is concealed."

This notice was confirmed by Press Release of November 25.

FRUIT PRODUCTION

George F. Waldo, Corvallis, Oreg.

"Some injury to the cambium layer has been noted in some of the bramble fruits," he writes November 23d, "particularly red raspberries and seedlings of Loganberry. However, the amount of injury cannot be definitely determined at this time. There seems to be very little injury to fruit buds."

FRUIT DISEASES

John C. Dunegan, Fayetteville, Ark.

"I have devoted considerable time this week to the report of the 1935 spraying experiments," he writes November 23, "and the report is practically finished. Several of the plots in the experiment had a summer oil emulsion added to the fungicide beginning with the first cover spray. The use of oil increased the effectiveness of the spray combination against the scab fungus but curiously enough the amount of blotch increased in each plot when the oil was used.

"An examination of results since 1929 indicates that in the previous years the same feature has been present but, because there was only one plot each year where the factor operated, the effect of a sticker had not been recognized. This phenomenon, which I believe is one of the most significant features of the 1935 experiment, will be discussed at some length in the report."

H. F. Bergman, Amherst, Mass.

"We have been getting out samples of cranberries for another storage test this week," he writes in the report of the Cranberry Disease Field Laboratory, East Wareham, Mass., for the week ending November 16th.

"This will be the last one to be run this season. Ordinarily we carry them until February 1. There are several reasons for cutting the tests short this year. The principal reason is that the results appear to be of insufficient interest to warrant a continuation. Most of our experimenting this year has been with dusts and they show very little control of rots as compared with check plots. Also on account of the shorter crop this year with much higher prices we want to return as many berries as possible to the growers while the market is good. Howes are now selling at $15.00 per barrel."

Freight Rates on Citrus Reduced

Drastic reductions in railroad freight rates on citrus fruits from Florida to New York City and other Atlantic ports were authorized yesterday by the Interstate Commerce Commission. The decision granted authority to the railroads to depart from the long-and-short-haul provisions of the law. Although of considerable importance from the standpoint of the traffic involved, the commission's decision was regarded as having a far greater significance as an indication of the lengths to which it might go in aiding the railroads to compete more efficiently with other transportation agencies or to recover traffic lost to them.

(Daily Digest, November 30, 1935)

ADMINISTRATIVE NOTES

Jury Duty. Under the heading "Employees of the Department of Agriculture are subject to Jury Duty in the District of Columbia," Personnel Circular No. 20, dated November 6, 1935, from the Office of the Director of Personnel for the Department states:

> Public No. 301, 74th Congress, approved August 22, 1935, provides:
>
> "All executive and judicial officers of the Government of the United States and of the District of Columbia **** those connected with the police and fire departments of the United States and of the District of Columbia**** shall be exempt from jury duty, and their names shall not be placed on the jury lists.
>
> "All other persons, otherwise qualified according to law whether employed in the service of the Government of the United States or of the District of Columbia****all postmasters**** shall be qualified to serve as jurors in the District of Columbia and shall not be exempt from such service****."

The Colicitor's office has ruled that in the Department of Agriculture only executive officers appointed by the President, by and with the advice and consent of the Senate, are exempt from jury service in the District of Columbia. All other persons employed within this Department and who reside in the District of Columbia are subject to call for such service.

Employees of the Department of Agriculture who are called upon to sit on juries shall not be paid for such jury service but their salary from the Department of Agriculture shall not be diminished during their term of service by virtue of such service, nor shall such period of service be deducted from any leave of absence authorized by law.

Transportation Requests. Recently the Division of Accounts has returned several transportation requests because they were not properly filled out. It is necessary to fill all spaces on a transportation request. In the cases noted, the place of issue, the date and the signature of the issuing officer had not been filled in. (In practically all cases in this Division, the issuing officer and the traveler are the same.)

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THE DIVISION OF FRUIT
AND VEGETABLE CROPS AND DISEASES

SEMI-MONTHLY

NEWS-LETTER

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

I N D E X